MONEY

Frederick A. Bradford

Longmans' Economics Series

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MONEY

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MONEY

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at what price?

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BRADFORD

MONEY

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PREFACE

This book represents an effort to provide satisfactory text-book material on the subject of money. It is designed for a one-semester course in money, or for use in a full-year course in money and banking in conjunction with the proper sort of text in the latter phase of the subject. It has been my intention to emphasize the principles of money, rather than monetary practices, throughout the book. The latter are subject to change—almost without notice—in periods of monetary reconstruction and stabilization such as the one which began after the War and is still under way, while fundamental principles apply under any conditions; furthermore, and quite apart from the question of variations in practice, it has always been my conviction that matters of technique may be learned better and more rapidly in the business world than in the classroom. Much practical material has necessarily been introduced for purposes of illustration, but monetary principles have nevertheless received the main emphasis.

It is, perhaps, needless to point out that the chief contribution to which this book can lay claim is in the choice and arrangement of existing material in proper fashion for classroom presentation. This, in itself, is no small task. So much controversial literature has been written on the subject of money that a sorting of the wheat from the chaff has seemed to me a worthwhile project. If a monetary system is founded on sound principles and is not meddled with, it will tend to run smoothly and give rise to few problems of

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significance. On the other hand, a great deal of damage may result from unwise monetary regulation. A sane and sober presentation of sound principles may, it seems to me, do much toward assisting the student to recognize the merits and the drawbacks of proposed measures in a field which has long been a favorite playground of economic reformers.

Although I have derived assistance from many sources, I wish to acknowledge especially the work of Professor F. M. Taylor, *Some Chapters on Money,* and a small book, *Money,* by Dr. Edwin Cannan, as having been particularly helpful. My personal thanks are due to the Editor of this Series, Professor E. L. Bogart of the University of Illinois, for many helpful suggestions with respect to the arrangement and presentation of the material, and to my colleagues, Professor Neil Carothers and Professor Herbert M. Diamond, of Lehigh University, who have given me advice, criticism, and encouragement at various stages in the preparation of the manuscript.

FREDERICK A. BRADFORD.

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MONEY

MONEY

CHAPTER I

THE NATURE AND FUNCTIONS OF MONEY

Introduction.—The necessity for money arises out of the nature of our present-day exchanging economic order. One of the outstanding characteristics of such an order is that each individual produces commodities or services which he himself does not want and exchanges his products for those of other producers which he does want. Now it is conceivable that a man might occasionally be able to exchange his own products directly for those which he desires to obtain, but such procedure cannot be carried far. Imagine the difficulty that a manufacturer of nails would encounter in trying to exchange his product for a fur coat. He would be hard put to it to find a furrier who wanted nails at all, and if he did find one, the chances that the furrier would want a fur coat's worth of nails would be decidedly slim.

The above example of barter—the direct exchange of goods for goods—illustrates two drawbacks which are inherent in this type of exchange. They are, (1) a lack of *coincidence* or *mutuality* in the wants of the two parties who desire to exchange their goods for other goods which they want, and (2) the lack of *divisibility* in the case of the larger or more valuable goods offered for exchange. These difficulties are

not so prominent in an undeveloped society as in the illustration given, but in our highly specialized economic organization of today it would be possible to cite hundreds of instances in which the difficulties of barter would be so great as to make any direct exchange of goods for goods impossible. Even in cases in which barter is possible, there is no real *market* and hence no *single price* for the goods that are being exchanged. Each pair of traders must strike their own bargain, and the one who is most anxious to effect the exchange is practically certain to be worsted. The lack of a market may then be mentioned as a third drawback to exchange by barter.

Because of the difficulties mentioned, it is only in primitive communities, where the inhabitants are largely self-sufficient and only occasionally have surplus products which they wish to exchange for something else, that barter can be used and even then with a very limited degree of success. As specialization and the division of labor are extended, it becomes more and more necessary to have some medium through which exchanges may be consummated. Such a *medium of exchange* we shall term money, and by its use the drawbacks attendant upon exchange by barter are fully eliminated. To return to our previous example, if money were used, the manufacturer of nails would sell his product for money to people who wanted nails and then use part or all of the money so obtained to purchase the fur coat. The furrier, on the other hand, having sold his coat for money, could use a portion of this money to buy a few nails if he wanted them, or, if he did not, the money could be used to acquire the things which he did want. Finally, all the people having fur coats, or nails, or other products to dispose of would be offering their goods for money, while all the people wanting these goods would be bidding for them in terms of money with the result that a single market price would tend to be established for each product.

The Nature of Money

A definition of money.—The general nature of money has already been indicated. Its chief purpose is to act as a medium of exchange. We shall see later, however, that the use of money as a medium of exchange naturally leads to its service in certain other capacities. We shall therefore take these other services into account in defining money as follows: *Money is anything which is devoted to use primarily as a medium of exchange and which, because of this use, performs certain other useful functions.*[1] In this definition the word *primarily* deserves especial emphasis. If a man exchanges a bicycle for five bushels of apples and later exchanges these apples for a suit of clothes, he has made use of the apples as a medium of exchange, but this would not entitle apples to inclusion under the head of money unless they were primarily devoted to this use, which would certainly not be the case since very few people would be willing to take apples in exchange for other goods unless they wanted them for consumption purposes.

Desirable characteristics of money.—In the preceding paragraph it was stated that apples could not be considered as money because they would not be readily accepted in exchange for other goods except by individuals who actually wanted the apples themselves. Only a comparatively few people want apples at any particular time, and those desiring them want only a limited quantity, whereas a medium of exchange, to be widely used, must possess general accept-

[1] Compare this with Professor Taylor's definition of money: "Money is something which is specially designed for, and devoted to, serving as a medium of exchange, although it is also put to other uses for which it is specially fitted either because of its being a recognized medium of exchange or because of the nature of the substance from which it is made." *Some Chapters on Money*, p. 11. These definitions, while similar, differ in respect to scope, Professor Taylor's being somewhat less inclusive than the one given in the text.

ability, i.e., it must be readily accepted by practically *everyone* in exchange for other goods or services. *Acceptability,* then, is the all-important characteristic of a satisfactory medium of exchange and really covers the other characteristics which a desirable sort of money should have.

Other characteristics of money are significant mainly to the extent that they increase its acceptability. The most important of these other characteristics are (1) portability, (2), indestructibility, (3) homogeneity, (4) divisibility, (5) cognizability, and (6) stability of value. Ability to carry money about, or transport it easily, clearly adds to the readiness with which it will be accepted, for such things as carpets —which possess some of the necessary attributes of money— could scarcely be used as a medium of exchange because of their bulk and clumsy form. The fact that eggs break easily and are subject to decay would prevent them from being readily accepted even if they possessed all the characteristics mentioned above except indestructibility. Another objection to eggs is that they are not strictly homogeneous, some eggs being much larger, and of better quality, than others. Money must also be divisible to be acceptable. Houses and locomotives could not well be used as money because, among other things, they cannot be divided into fractions and used to obtain other goods of less value than they themselves possess. Unless money can be easily recognized as such, it will prove difficult to persuade people to accept it in exchange for their own goods or services. Some precious stones, for example, have a number of desirable characteristics of money, but the difficulty, on the part of the layman, in distinguishing between real gems and imitations would probably preclude the wide use of such jewels as money. The problem of preventing the counterfeiting of money is one which has never been entirely solved, but the solution is much less difficult when money is distinctive in appearance and easily recognized by the majority of people. Finally, the knowledge that a given

amount of money will remain relatively stable in value increases its acceptability, for the recipients are then sure that they may hold the money for some time if they so desire without taking the risk of any great depreciation in its value.

Money must itself have value.—The last mentioned characteristic of money—stability of value—clearly indicates that money must have some value in and of itself, or be capable of ready transformation into something which does have such a value. Certain observers of monetary phenomena have been wont to contend that money need have no value in and of itself, but that its value is purely a result of its performance of the medium of exchange function. It makes no difference, according to this view of the matter, whether money is made out of some valuable commodity like gold or out of scraps of paper. In either case, so long as it is widely accepted as a medium of exchange, its value will be determined by its exchange function. If gold were used for no non-monetary purposes, this statement would be entirely true. Attention must be called, however, to the qualifying clause, *so long as it is widely accepted as a medium of exchange.* The difficulty is that little scraps of paper, without other backing, no matter how elegantly and elaborately designed and engraved they may be, are not widely acceptable as a medium of exchange, and hence have no value for other than decorative purposes. It may be argued that this is merely the result of a psychological attitude on the part of the people and that, in time, it will be possible to persuade them to accept such paper in exchange for goods. This is quite true, for all economic value is the result of a psychological attitude on the part of people, coupled with a scarcity of the things desired. It may be possible in time to persuade people generally that the products of the so-called modern school of artists are beautiful, and so bring about an increase in their value by increasing the demand for them. Likewise, it *may* be possible to persuade people to accept bits of unsecured paper as

money, although as long as governments continue to exhibit a propensity toward the profligate issuance of this sort of money, any such change of attitude seems scarcely to be expected or desired.

Up to this point, the discussion has been concerned with the general nature of money and its more important characteristics. In the following section we shall turn our attention to the services which money performs in the economic community.

The Functions of Money

Money as a medium of exchange.—The general nature of the service performed by money as a medium of exchange has been described, but certain points in connection with the performance of this function need emphasis. In a barter transaction, there is but one step. Farmer Brown exchanges five bushels of wheat for half a ton of Farmer Smith's hay, and the transaction is completed. If money had been used in the same transaction, the number of steps involved would have been increased to three. (1) Wheat would have been exchanged for money; (2) the money would have been held for a longer or shorter period of time; and (3) the money would then have been exchanged for hay. The first and third of the above steps require no further mention, but the second merits some added discussion. It is plain that one of the advantages incidental to the use of money is the ability to defer the second part of the exchange transaction (step 3) until such time as it becomes convenient or desirable to use the money in obtaining other goods. The farmer who sells his wheat for money may not want hay for several months and, if the money is of the proper sort and is stable in value, he will find it much more convenient to retain his claim to wealth in the form of money than to buy the hay immediately and hold it until he wishes to use it.

In the example just given, the holding of money for a few months by the farmer who had sold his wheat was merely a convenience to him and, in itself, would not be productive of any far-reaching results. If, however, a great many people in the community decide, for some reason, to hold a larger proportion of their incomes than usual in the form of money, or to hold the accustomed proportion for a longer time than usual, or to do both of these things, the economic effects of such action may be decidedly significant. A detailed treatment of this aspect of money exchange must be postponed to a later chapter (Chapter X). For the present we shall merely note the significance of the second step in the use of money as a medium of exchange, i.e., the holding of money for an indeterminable period until it is desired by the holder to spend it for goods, and pass on to a consideration of certain other functions of money which are largely derived from its use as a medium of exchange.

Money as a measure of value.—Since money has to have value to act satisfactorily as a medium of exchange, it naturally takes on the added function of serving as a measure of the values of all other economic goods. If, under a barter regime, a man who has a surplus of wheat finds that he can exchange 3 bushels of wheat for (a) 1 crate of eggs, (b) 6 bushels of corn, (c) 1 hat, or (d) 2 bushels of apples, he would then consider a bushel of wheat to be worth ⅓ of a crate of eggs, or 2 bushels of corn, or ⅓ of a hat, or ⅔ of a bushel of apples. From the point of view of the seller of eggs, a crate of eggs would be worth 3 bushels of wheat, 6 bushels of corn, 1 hat, or 2 bushels of apples. Now all of this is very confusing and gives us no clear idea of the economic values of any of the commodities in question. Each party to an exchange of the sort mentioned naturally thinks of the value of the goods he disposes of in terms of that of the goods he receives, but he must change his measuring stick from eggs to corn to apples, etc., in each of his various transactions.

If now, instead of measuring the value of each commodity in terms of each other commodity for which it may be exchanged, the value of each commodity is referred to some one thing, we shall have an understandable measure of the values of different goods. Since money, in acting as a medium of exchange, is the one thing for which practically all goods are exchanged sooner or later, it will almost inevitably be chosen as the thing in terms of which the values of all other goods will be measured. The situation is greatly simplified. In our illustration, if wheat is worth 1 dollar a bushel, eggs will be worth 3 dollars a crate, corn ½ dollar a bushel, hats 3 dollars each, and apples 1½ dollars a bushel.

The measurement of values by means of money is thus not essentially different from the measurement of any property or characteristic. In measuring a door for a screen, a yardstick divided into feet and inches will be used. The measurements are then recorded and an order may be sent for the amount of screening needed. The hardware dealer, having a similar yardstick, will be able to cut the screening in the proper dimensions, so that it will be sure to fit the door, without his having seen the door at all. Without the convenience of this common measure—the yardstick—the owner of the house would have had to measure the length and breadth of the door with a piece of string, a stick, or some other object, and then take or send these pieces of string or wood to the hardware dealer to use in cutting the screen. The yardstick, then, offers a common measure of length, known to all, and greatly simplifies the measurement of different lengths and makes them understandable. In like fashion, the monetary unit, which is used by all as a medium of exchange, furnishes a common measure of the heterogeneous values of goods and services. A farmer, for example, may have an old-style Ford which he wants to sell to a man from the city. The latter, upon inquiring what the farmer thinks the machine to be worth, receives the reply that he

values it at about three small heifers. The city man, knowing nothing of heifers or of their probable worth, is as much in the dark as ever. If told, however, that the machine is worth $60, he will immediately know where he stands, for he knows how much of the things he is accustomed to buy can be purchased for $60 and is, therefore, able to come to some decision regarding the purchase of the automobile.

In most cases, the use of money as a measure of value is simply incidental to its use as a medium of exchange, for whenever a good is exchanged for money it will naturally be valued in terms of the money received for it. Similarly, when goods are exchanged directly, each party to the exchange is likely to value the goods given in terms of those received. The man who exchanges 3 bushels of wheat for one crate of eggs, naturally measures the value of each bushel of wheat at ⅓ of a crate of eggs. Consequently, the measure of value function of money may seem to be co-terminous with its medium of exchange function, but in some instances money may serve in the former use without acting as a medium of exchange. A certain individual with, let us say, a desk wishes to exchange this directly for a friend's bookcase. They compare values. The owner of the desk thinks it is worth $65, while his friend believes his bookcase to be worth $75. If they are agreed on the relative value of the two articles, the man owning the desk offers, perhaps, to throw in a dictionary worth $10, and the trade is made. Such instances, while relatively few in number, occur with sufficient frequency to warrant our consideration of the measure of value function of money as one which may be distinguished from its medium of exchange function.

Other functions of money.—Certain other functions of money which arise out of its use as a medium of exchange should receive mention. Most important among these, perhaps, is the use of money as a *guarantor of solvency.* Every business has certain claims against it which can be settled

only in money, the latter having generalized purchasing power and hence being satisfactory to all in the settlement of claims. All business concerns have claims against others also, at practically all times and they expect these to be paid in money. The receipts from the collected claims may furnish the exact wherewithal to meet the money payments which have to be made. But no business concern dares to rely upon such a balancing of receipts and expenditures at all times. Payments to others must be made, dollar for dollar, while expected receipts may not materialize in full. Further, even when receipts come in as expected, they probably will not coincide exactly with payments at any particular time, and unlooked for contingencies may arise from time to time which can only be met by a money payment.

For all these reasons, every business of any consequence feels the necessity of keeping a certain proportion of its assets in the form of money at all times. A strong cash position, as the term goes, adequately insures the ability of an enterprise to meet its debts as they come due, and thus maintain solvency. It is undesirable to retain too large a proportion of assets in the form of cash, for such procedure reduces income. The proper balance between safety and profit must be struck and this balance will vary from time to time with the condition of business in general and with other factors. Consequently, the amount or proportion of assets which is kept in the form of money varies considerably from one time to another, and we shall see later that this factor has an important bearing on the determination of the value of money. At this point, however, we are mainly concerned with the function that money performs in preventing insolvency by insuring business enterprises of the necessary means to meet their legal obligations when they fall due.

Money may also be used as a *storer of value*. A satisfactory medium of exchange is stable in value, and this characteristic permits money to serve as a means of storing up

value for indefinite periods. Under modern secure conditions this is merely a part of the medium of exchange function, money being held for indeterminate periods before it is spent largely as a matter of convenience. At times in the world's history, however, when property has been subject to seizure by the ruling authorities, or to theft by robbers and marauders, or to destruction by invaders, money has played an important part as a storer of value. Gold and silver coins having a high value per unit of bulk and being extremely durable, could be hidden easily for as long a time as necessary. Used in this sense, the storer of value function of money is distinct from its medium of exchange function, but this is a distinction of little importance in modern civilized countries.

Another, and relatively unimportant, function of money is that of serving as a *gift medium.* This is not an exclusive function of money, but the fact that money has the property of universal or generalized purchasing power makes it a highly desirable medium to use for this purpose. A person very often wishes to remember someone, but has no idea just what the individual in question has or would like to have. The easiest solution of the problem is to send money as a gift, the recipient being then able to make his own choice and select that thing which will be most useful or pleasurable to him in view of the size of the gift.

Finally, the use of money as a medium of exchange has led to its recognition and use by governments as a *legal means of payment,* both of private debts and of public duties, fines, penalties, and taxes. The latter are one-sided payments in which the individual receives no specific benefit in return for the money given to the government, but merely shares in the general benefit which the government confers upon the group as a whole. As such, they are akin to gifts as far as their relation to the medium of exchange function of money is concerned. That is, the purchasing power embodied in the

money is transferred to the state, and the state is then enabled to use it in the most convenient manner to obtain the goods and services incidental to running the government. In this way the state can satisfy its wants more efficiently than if it extracted goods and services directly from the taxpayers, since the latter are frequently unable to furnish either the goods or the services which the state is likely to require.

Money as a loan medium and standard of debt payments. —The functions of money in acting as a *loan medium* and a *standard of deferred payments* have frequently received considerable emphasis. These functions, however, follow naturally from the use of money as a medium of exchange and are scarcely to be distinguished from the latter. Money acts as a loan medium simply because it is the recognized medium of exchange. The borrower of money can use the proceeds of the loan to purchase the goods or services which he wants to acquire, while he would find it difficult, indeed well nigh impossible, to borrow these goods directly.

That money performs no distinctive or peculiar service in acting as a standard of debt payments has been well demonstrated by Professor Taylor as follows: [2]

> First, money surely cannot be the standard of debts or contracts in general but only of money debts. That is, money obviously cannot be the standard of a promise to deliver 10,000 bushels of wheat or 500 cords of wood or 1,500 barrels of apples. The standard for the wheat contract must be some sort of wheat, for the wood contract some sort of wood, for the apple contract some sort of apples. The statement, then, can have no other meaning than that money forms the standard of *money contracts*. But, secondly, to say that money constitutes the standard of *money contracts* is little short of absurd. If it means anything, it is a mere identical expression. To say that a contract is a money contract is to say that money determines the thing which must be delivered, and so is to say that money is the standard of this particular contract.

Borrowers prefer to borrow money rather than goods because great difficulties are thereby avoided. Creditors prefer

[2] *Some Chapters on Money*, p. 29.

to receive payment in money for the same reason. The difficulties which are avoided are identical with those which impede exchange by barter and the preferences of debtors and creditors are directly attributable to the general acceptability of money in exchange for goods. It should be obvious, therefore, that the performance by money of the offices of loan medium and standard of debts is purely incidental to its use as a medium of exchange.

The Importance of Money

Advantages.—The various functions of money which have just been discussed show clearly the advantages of a money economy over one conducted by means of barter exchange. Under barter, practically no development of specialization and division of labor is possible, while the use of money permits a high degree of development along these lines. It is not necessary to dilate here upon the advantages which society derives from the widespread division of labor, specialization of machinery, and large-scale production which characterize our present economic system, advantages which are familiar to every student of elementary economics. It is necessary, however, to sound a note of warning against attributing these advantages too fully to the use of money. An oiling system is essential to the satisfactory operation of a motor car, yet one would hardly ascribe all of the advantages of the automobile to the existence of its oiling system. The motor, gears, wheels, and other parts must be available and ready to render service if the oiling system is to be of any use. In the same fashion, a wide market for goods, an efficient transportation system, and other factors are essential parts of any highly developed exchanging order.

The analogy may be carried a step further. The advantages to be derived from a given kind of automobile result *largely* from the efficiency of its motor and the perfection

of its technical construction. Given these things, a satisfactory oiling system is necessary to insure smoothness of operation, but no oiling system, no matter how perfect, is capable of making a good automobile if its motor, gears, or axles are not serviceable. So it is with our exchanging economic order. The main advantages of such an order are attributable, in large part, to the width and steadiness of the markets for which goods are produced and the efficiency of the systems of transportation, marketing, and communication, as well as the efficiency of the factors of production. Given satisfactory conditions along these lines, and a sound monetary system will tend to make the economic order function smoothly by facilitating exchanges, or, in terms of our analogy, by "oiling the wheels of trade."

Disadvantages.—In considering the disadvantages attendant upon the use of money, a similar attitude of caution must be maintained. A bad monetary system will hamper trade just as a poor oiling system will interfere with the efficient operation of a motor car. If business is unduly restricted because the amount of money available is too small, or if speculative tendencies are unduly aggravated by a plethora of money, or if borrowed money is put to improper uses because of questionable credit policies on the part of the banking system, it is then highly advisable to direct attention to the monetary system in an effort to eliminate the difficulties which have arisen. On the other hand, one would hardly attempt to place the blame for the dissatisfaction with one of the early models of a certain car at the door of that car's oiling system when the trouble was quite obviously to be traced to a defective rear axle. The manufacturers replaced the troublesome axle with a new one and greatly improved the car. Such a step was entirely logical. Yet, in connection with our economic troubles, there is a decided tendency to adopt a less logical attitude and to advo-

cate some change in our monetary arrangements as a remedy for any and all economic disturbances.

The analogy which has been drawn between a motor car and the present-day economic system may, no doubt, be carried to extremes. Nevertheless, the comparisons which have been drawn above are, in the main, sound. Money is an instrument which performs a most useful service and, as such, its place in the economic system deserves careful attention. It is not to be supposed, on this account, that money alone is responsible either for all the advantages or for all the drawbacks of present-day economic society. An unsound monetary system will doubtless result in grave economic disorders which may, in turn, be ameliorated by improving the exchange mechanism of the country. On the other hand, when the money mechanism is sound, relief for economic difficulties must be sought in other channels. A study of the principles of money, to which the succeeding chapters are devoted, is important in that it enables us to distinguish between disturbances which arise from an unsound system of money and those which have their origin in other sources.

Before proceeding with a detailed examination of the principles and practices connected with the use of money, we shall conclude this chapter with a discussion of certain common fallacies which are attributable to misunderstandings concerning the general nature of money.

Some Common Fallacies Regarding Money

Money confused with wealth.—It is so common for us to measure economic values in terms of money under the present economic order that individuals frequently fail to realize that money is merely an instrument of exchange, and so tend to confuse money with wealth. A very wealthy man is often conceived as a man with a large amount of money, while, as a

matter of fact, the wealthy man usually has a comparatively small amount of money in his possession, his wealth consisting largely of various economic goods such as houses, factories, land, motor cars, and a host of other things. Laborers, commonly, in a period of rising money wages feel that their incomes are being increased, whereas it is frequently the case that the goods for which they spend their wages are rising more rapidly in price than the wages themselves. Their real income, therefore, as measured in other goods, is decreasing, but the rise in money wages obscures this fact.

This distinction between money and economic goods seems very simple to grasp and it is probable that, if the people who confuse money with wealth would stop to think about it, they would realize the absurdity of their position, while there are many others who speak of a man as being "worth $1,000,000" when they merely mean that the total value of his economic possessions, when measured in terms of money, is $1,000,000. This method of speaking is perfectly satisfactory as long as it is understood what is meant. It is quite apparent, however, that many people do not have the distinction between money and wealth clearly in mind, for certain unsound proposals put in an appearance from time to time in various places and they are accepted as sound by a great many people because of their confused conceptions regarding the true nature of money.

The "spend your money at home" fallacy.—Among the fallacious notions just mentioned, one that is frequently encountered is the idea that the community is greatly benefited if the inhabitants spend their money within the district in which they live. This sort of misconception evidently arises from the belief that a loss of money from the community represents a loss of wealth of equal amount. As illustrative of this fallacy an incident which occurred in a southwestern city some years ago is recalled. One of the local newspapers inaugurated a plan for a "stay-at-home" dollar which was

designed to show the beneficent power of a single dollar if spent in the community in question. A dollar bill was enclosed in a case with a card attached upon which each person spending the dollar was to write his name. The dollar circulated about the city for a week or two and each day the newspaper would report the number of names added to the card. The results of this experiment were necessarily rather indefinite, but were supposed to indicate the benefits which the community would derive if the people all spent their money at home. It does not require much acumen to see what the effect of such a policy would be if carried to its logical conclusion. If *everyone* spent his money at home, *everything* which he used would have to be produced at home, i.e., in the immediate locality. It would be impossible for anyone outside the community to buy there if no one in the region would buy from outside. To sell elsewhere, but refuse to buy, is economically absurd. Take a simple example. Assume four communities only, *A*, *B*, *C*, and *D*. Suppose that *A* sells to *B*, and *B* to *C*. Community *D* wants to sell goods to *A*, but refuses to buy from *C*. What will be the result? *A* will pay *D* for the goods purchased from the latter with the proceeds from its sale of goods to *B*. *B* will pay *A* with the proceeds from the sale of goods to *C*. But *C*, having been unable to sell to *D*, will not have the wherewithal to pay *B*. Obviously, such a scheme will not work. It would be possible, of course, for a time, for *A* to pay *D* in money and use the goods obtained to exchange for other goods from *C*. Many citizens of *D* would doubtless welcome such a procedure, but it would really be far from satisfactory. Money is of use primarily to obtain other goods and, once the amount requisite to the smooth working of exchange has been obtained, a further increase in the stock of money is not to be desired, and really detracts from the welfare of the community by diverting to the acquisition of money various goods and services which might more properly be used to obtain

other goods. Consequently, the "spend your money at home" policy would lead either to an excessive increase in the amount of money, or to a self-sufficient community with no outside relationships. The objection to the former result has been noted. The latter would eliminate the advantages of the geographical division of labor, an effect which would hardly vindicate the optimistic opinions of those who favor such a policy.

Along very similar lines lies the argument frequently advanced for the *employment of local labor*. Concern has often been expressed, for example, because laborers have been brought into a community from outside and, having performed their services and received their pay, have departed to other regions to spend the money which they have obtained. A little thought with respect to the real nature of money would dispell such concern. Money represents universal purchasing power, but is really just one kind of wealth. It is useful in a number of ways, but finds its chief utility in its ability to procure other economic goods. If the transient laborers removed some of the community's money, they left behind some valuable services which helped to create the finished products that the members of the community will later be offering for sale. These products when sold—many of them to outsiders—will bring a return flow of money into the district, which may then be considered as exchanging one form of wealth, goods, for another form, money. The lost money will have returned, but, strange to say, this aspect of the situation is seldom noticed, while the removal of the money from the region is eyed with misgiving.

The "putting money into circulation" fallacy.—There is a vague but prevalent belief among laymen that the community derives certain advantages from the putting of money into circulation by the inhabitants. Just what these advantages are is difficult to discover. Neither is it clear just what is meant by the phrase "putting money into circulation." If it

means merely spending money for goods, it is devoid of any significance whatsoever. It is the nature of money to circulate—to pass from hand to hand in exchange for goods—and, so long as it remains money, it must continue to circulate, for as soon as it ceases to be used as a medium of exchange it ceases to be money. If, on the other hand, the phrase is interpreted to mean that money should be spent more frequently than has been the case, so that its velocity of circulation will be increased, the idea that the community will be benefited by such action is erroneous. Given a certain amount of goods and services to be exchanged in a certain period, and money should, and normally will, circulate just rapidly enough to effect these exchanges. Any greater rapidity of circulation than that necessary to bring about this result will only make necessary either more frequent exchanges of the available goods than is necessary or an increase in prices, and neither one of these results will be beneficial to the community.

The "more money" fallacy.—The three fallacies just discussed need not give us much cause for concern for we may depend upon the majority of people to spend their money where they can obtain goods most cheaply, to hire the best laborers possible at the lowest prices, and to put their money into circulation when they desire goods in exchange for it. There is, however, another common fallacy which is somewhat more pernicious because it has an element of appeal to many business men, and this is the notion that all industrial ills may be cured by a resort to ever-increasing quantities of money. The reasons for the wide appeal made by these "more money" proposals among business men cannot be discussed in detail at this point. It suffices to say here that the basis upon which such proposals are usually defended is the previously remarked confusion between money and wealth (although this may not be the basis for their acceptance by business men). To any individual, the possession of money

means the command over wealth, and, if the amount of money he holds is increased, his ability to obtain economic goods is likewise increased. What holds for the individual, however, does not hold for the community as a whole in this case. Obviously, an increase in the amount of money can in no wise increase the amount of wheat and automobiles and other economic goods. Since this is the case, unless the money in everyone's possession is increased in the same proportion, some people will get more than their share of the increase while others will get less. Actually, the latter situation will almost certainly result from large increases in the amount of money which, in effect, is likely to make matters decidedly worse than before the remedy was tried. Too much money is probably better than no money at all, but it is not nearly so satisfactory as the right amount, which is the amount necessary to allow the exchanges of the country to take place smoothly and efficiently, but no more than this.

Necessary qualifications.—While the proposals and opinions which have just been considered are, in the main, fallacious, they contain some modicum of truth if viewed in a particular light, so that it seems advisable to qualify somewhat a number of the statements which have been made in the preceding paragraphs. Regarding the attitude of laborers toward their wages, for example, while it is true that money wages usually do not rise so rapidly as the prices of commodities, it is also true that periods of rising money wages are almost certain to be characterized by full employment of labor. Periods of falling money wages, on the other hand, are apt to be characterized by a substantial amount of unemployment. Laborers as a group, therefore, are quite justified in preferring the former to the latter periods.

The spending of money in the home town does benefit, to a considerable extent, those storekeepers and others who are already located in that place. They may not deserve to benefit if they are less efficient than their out-of-town com-

petitors, but an increase in their own trade is an unquestionable advantage to them, and it may be presumed that propaganda of the sort in question is often started by such individuals. Again, after periods of industrial depression, the revival of business is accompanied by an increase in the rapidity of circulation of money. The real factor in the business revival is an increased demand for, and production of, goods, and naturally, as more goods are demanded and produced, more money will be put into circulation. It is not the putting into circulation of the money which in itself brings the increased prosperity, but the increased demand for goods, and however desirable it may be for certain producers to have the demand for their goods increase, it is usually quite impossible to persuade people to spend their money for goods until they are quite ready to do so.

The individuals who advocate more money as a remedy for industrial and economic ills are justified in their attitude when a country really has a deficient monetary stock. When the amount of money is not sufficient to care for the exchange transactions of the country with facility, an increase in the amount is highly to be desired. Money is something which, like any capital good, is needed in just the proper amount, either too much or too little being decidedly unsatisfactory. It is rather to be suspected, however, that the usual advocates of schemes for more money are either ignorant of the true nature of money, or desirous of repaying their debts in money which has a decreased purchasing power. In fact, all of the fallacious proposals or schemes which have been mentioned are ordinarily advocated by individuals who have something to gain at the expense of the public by the adoption of the policies that they propose and these fallacies are then acclaimed correct by an unsuspecting public because they sound fairly plausible. It may be that the proponents of such schemes are often honest in their expressions of belief in the workability or desirability of the plans which they advocate.

This does not alter the fact that their proposals are fallacious and may be exposed upon the basis of a sound understanding of the nature and functions of money.

Plan of the book.—We have now completed a survey of the general nature and the functions of money. In the succeeding chapters it will be necessary to enter into a detailed description and analysis of the various aspects of monetary phenomena. The typical monetary system, the use of bank notes and checks as money, the principles which govern the circulation of money, and the various phases of the monetary system of the United States will be considered in order. Following this we shall take up the principles which govern the value of money and the relation of the business cycle to changes in the value of money. The possibility and desirability of the control of credit money will then be discussed, followed by an analysis of foreign exchange operations as they relate to money. A final chapter will be devoted to a critical estimate of various possible standards of value.

QUESTIONS FOR STUDY

1. What are the difficulties of barter?
2. Show the way in which these difficulties are overcome by the use of a medium of exchange.
3. Doubtless, at times, wheat has served as a medium of exchange. Does this entitle it to be included under the head of money? Why or why not?
4. Name six desirable money characteristics. Why are these characteristics particularly desirable for money to possess?
5. What is meant by the statement, "Money must have value in and of itself"? Why may we feel pretty sure that this statement is true?
6. What three steps are involved in the use of money as a medium of exchange?
7. Show the similarity between money as a measure of value and a yardstick as a measure of length. (See question 3, Chapter XX.)
8. Evaluate the various functions of money in relation to their significance.
9. "Money performs no distinctive or peculiar service in acting as a standard of debt payments." Defend this statement.

10. What is the importance of the part played by money in the economic system?

11. Discuss the soundness of the following statement from an editorial in the Wakefield (Mass.) *Daily Item* of February 28, 1928: "*The Daily Item* has had several references to the detrimental effects of chain stores on the business life of a community, *by reason of absorbing all the money they take in, and sending it out of town, never to return through local channels.*" (Italics are mine.)

12. Write a summary of the chapter.

BIBLIOGRAPHICAL NOTE

In view of the general nature of the present book, it seems advisable to insert a general bibliographical note on money at this point, and to confine the notes at the end of subsequent chapters to references which are of a specialized nature or which have been particularly helpful to the author in the preparation of his material. The bibliography on money is, of course, extended, and it will be possible to include here only a few of the more important English works on the subject.

A brilliant and stimulating piece of work is to be found in B. M. Anderson, Jr., *The Value of Money* (New York, 1917). While somewhat over-critical in parts, this book is worthy of careful attention. An excellent small treatise which is concerned chiefly with the value of money is Edwin Cannan, *Money: Its Connexion with Rising and Falling Prices* (London, Fourth Edition, 1923). A rather complete and able treatment of the subject of money is contained in Gustav Cassel, *A Theory of Social Economy* (New York, 1924), Third Book. Irving Fisher, *The Purchasing Power of Money* (New York, 1911) presents a scholarly defense of the quantity theory of money in its strict form. A somewhat novel and interesting treatment of money is to be found in W. T. Foster and W. Catchings, *Money* (Boston and New York, 1923). R. G. Hawtrey, *Currency and Credit* (London, 1919), is written in heavy and difficult style, but merits careful study; the New Third Edition (1928) represents a complete revision of the earlier work into which considerable new material has been introduced. W. S. Jevons, *Money and the Mechanism of Exchange* (New York, 1893), has long been recognized as a standard work and contains much interesting and useful material. E. W. Kemmerer, *Money and Credit Instruments in their Relation to General Prices* (New York, 1909), supports the quantity theory, but in saner and less narrow fashion than does Professor Fisher in the reference cited above. A longer and more thorough treatment of money than is usually to be found in textbooks on money and banking is contained in R. D. Kilborne, *Principles of Money and Banking* (Chicago, 1927), Part I. A clear treatment of the subject

of money, of interest to the general reader, is to be found in David Kinley, *Money* (New York, 1913). G. F. Knapp, *The State Theory of Money* (London, 1924), is a translation of an interesting German work. The introduction of an entirely new terminology, however, makes it difficult to follow. J. L. Laughlin, *The Principles of Money* (New York, 1926), is a large volume containing much interesting and useful material. As might be expected, Alfred Marshall, *Money Credit and Commerce* (London, 1923), is a brilliant and stimulating piece of work. J. S. Mill, *Principles of Political Economy* (Fifth London Edition), Volume II, Book III, may still be carefully studied by the student of money with great benefit. J. S. Nicholson, *Money and Monetary Problems* (London, 1901), expounds the quantity theory of money in its narrow form. D. H. Robertson, *Money* (New York, 1922), is a small volume, written in delightful style, and containing much sound monetary theory. W. A. Scott, *Money and Banking* (New York, Sixth Edition, 1926), Chapters I-VII, is devoted to a general study of money and credit. It contains some helpful material, but the treatment is inadequate and, in spots, faulty. A sane and fairly comprehensive treatment of money and currency is to be found in F. W. Taussig, *Principles of Economics* (New York, Third Revised Edition, 1926), Volume I, Book III. Perhaps the most careful and accurate theoretical treatment of monetary principles with which I am familiar is contained in F. M. Taylor, *Some Chapters on Money* (Ann Arbor, 1906). This was a limited edition printed for the use of Professor Taylor's students at the University of Michigan. The logical precision and excellent presentation of the material contained in this book, together with the fact that it has long been out of print and is not generally available, has led me to follow it rather closely at a number of points in the present text. A comprehensive treatment of the subject of money, although one which is out of date in many respects, is F. A. Walker, *Money* (New York, 1879). Horace White, *Money and Banking* (Boston, Fifth Edition, 1914), Books I and II, presents an interesting mixture of analysis and historical facts. J. P. Young, *European Currency and Finance* (Washington, 1925), Volumes I and II, is a report to the Commission of Gold and Silver Inquiry of the United States Senate, and is a veritable mine of interesting information with respect to the past and present currency systems of all the European countries.

Much statistical information, as well as factual and legal material, which is of interest to the student of money in the United States is to be found in the *Annual Reports of the Director of the Mint,* the *Annual Reports of the Federal Reserve Board,* and the *Annual Reports of the Comptroller of the Currency.* Each Federal reserve bank publishes a monthly review of business and financial conditions in its own district which frequently contains useful informa-

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tion. *The Federal Reserve Bulletin,* which is the monthly bulletin of the Federal Reserve Board, is invaluable to the student of money and banking in this country and contains much information relating to foreign monetary and banking conditions as well.

Among the wide range of publications of banks and trust companies, three deserve mention in this place. *The Chase Economic Bulletin,* published several times a year by the Chase National Bank of New York City, is perhaps the most scholarly bank publication in the country. The *Monthly Letter* of the National City Bank of New York is excellent. *The Commerce Monthly,* published by the National Bank of Commerce in New York, at times contains excellent editorials on the monetary situation.

The Commercial and Financial Chronicle, published weekly, contains complete and reliable statistical data and publishes excerpts from many articles and papers of interest. *The Annalist,* also published weekly, presents many articles by competent writers on the subject of money and finance. Among the daily papers, the New York *Journal of Commerce* and *The New York Times* may be mentioned as reliable sources of current information.

When the general references cited above are repeated in subsequent bibliographical notes, the place and date of publication will be omitted.

Certain publications which have appeared since the first printing of this book should be added to the list already given.

L. D. Edie, *Money, Bank Credit and Prices* (New York, 1928) is a comprehensive piece of work containing much interesting material. R. G. Hawtrey, *Trade and Credit* (London, 1928) is a compilation of monetary essays which will well repay careful study whether the reader agrees with all of Mr. Hawtrey's conclusions or not. J. S. Lawrence, *Stabilization of Prices* (New York, 1928) is an analytical and critical study of stabilization plans which merits careful reading.

The publication, monthly, of *Social Science Abstracts,* beginning in March, 1929, now affords students in the social sciences an excellent bibliography and digest of the periodical literature in their respective fields. The sections devoted to Money, Credit, and Banking are particularly recommended to those who are interested primarily in the subject matter of this book.

CHAPTER II

THE TYPICAL MONETARY SYSTEM

Introduction.—Although the history of the development of money and monetary systems presents a fascinating study, any extended historical survey of monetary evolution is outside the limits of this book. Furthermore, much of the available material, while interesting, is of scant importance for our purposes. We shall, therefore, in introducing the discussion of the typical present-day monetary system, present merely a few of the outstanding features of monetary development.

Commodity money.—In the primitive stages of economic development, various commodities have at times been used to perform the more important functions of money. The commodity which came to serve in this capacity was one which was widely used in the community in question and which had as many of the desirable characteristics of money as possible. Thus, skins appear to have been used as money by non-tropical hunting races; oxen and sheep by peoples in the pastoral state; and tea-blocks, cocoa-nuts, cocoa-beans, dates, sugar, corn, wheat, and tobacco among agricultural peoples in various geographical locations. Dried fish have been used in a monetary capacity by certain more or less isolated fishing communities. Among manufactured articles, linen, strips of cotton, shirts, wax-cakes, javelins, and straw mats have served in a similar capacity in various parts of the globe. In

the way of minerals, salt-tablets and various raw metals have been resorted to upon occasion.[1]

There may well be some question as to whether all of the commodities mentioned in the preceding paragraph should really be classed as money in view of the services which they performed. It is probable that some of them, particularly the skins and oxen of the early stages of social development, served chiefly as measures of value and were only used sporadically as media of exchange. Be that as it may, it is safe to assert that no great economic development could well have taken place without the use of a more highly satisfactory type of money than any of those just described. Certainly, nothing which even faintly resembled a monetary *system* could be said to exist until some instrument was actually *designed* for use as a medium of exchange.

The metals as money.—Historically, such designed instruments of exchange have usually first put in an appearance with the coining of money from the metals. Iron money was long used in Sparta, and copper coins were struck in some of the Mediterranean countries several hundred years before Christ. These countries were also early to strike coins from silver and gold, silver coins being introduced into Greece, it is said, as early as the eighth century B.C., while gold coins appeared several centuries later. Silver coins were first struck by the Romans in 209 B.C., and gold coins about two years later.[2]

From these early, and very simple, monetary systems (if such they may be called), the intricate and highly efficient arrangements of the present day have developed. While copper and bronze coins are still in use, their appearance in modern monetary systems seems to have followed the use of

[1] For an annotated account of primitive forms of money, see Roscher, *Political Economy*, Book II, Ch. III, Sec. CXIX, text and footnotes, especially footnote 12; and Jevons, *Money and the Mechanism of Exchange*, Chapter IV.

[2] The above facts with references are to be found in Roscher, *ibid.*

silver,[3] and for many years the leading commercial countries have employed silver or gold or both metals as a basis for their monetary systems. Some isolated countries have used other metals as money because of their availability, but silver and gold have predominated among highly developed peoples since the time of the Romans.

The choice between gold and silver seems to have depended partly on their relative values and partly on the preferences of the peoples concerned. The Germans used silver as a basis for their monetary system prior to 1870, the laws of 1871–1875 placing that country, legally, upon a gold standard.[4] England adopted a full gold basis as early as 1816, but preceded the other leading nations of Europe in so doing. France was legally on a bimetallic basis (silver or gold) from 1803 to 1878, while, from the formation of the Latin Monetary Union in 1865 until 1878, Switzerland, Belgium, and Italy—the other members of the original Union—as well as France, had, theoretically at least, a bimetallic standard.[5] From 1878 on, the majority of the leading countries of Europe have been on a gold standard, although silver coins have been retained in use in their monetary systems.[6]

Reasons for the adoption of gold and silver.—The reasons for the widespread adoption of gold and silver as money are to be found in the excellent money characteristics which these metals possess. Both metals have a high value in relation to their bulk which makes possible the manufacture of coins of convenient size, i.e., coins which have the characteristic of *portability.* These metals are also malleable, so that the attribute of *divisibility* may be readily attained with their use as money. Both gold and silver are very *durable,* especially

[3] *Ibid.*, footnote 3.

[4] *European Currency and Finance*, Vol. I, p. 387.

[5] For a complete account of the Latin Monetary Union, see Willis, *A History of the Latin Monetary Union* (Chicago, 1901).

[6] The situation in the United States will be treated in a subsequent chapter (Chapter VI).

when alloyed with small quantities of other metals, for they are not subject to any marked deterioration upon exposure to air as are some metals such as iron. They are *homogeneous* also, for gold and silver can vary only in degree of purity. There are not different kinds of gold or different kinds of silver. As to *cognizability,* the metals have characteristic lusters which are easy to distinguish, and their malleability permits them to be minted into coins which are readily recognized by all. Lastly, both metals are much sought after for purposes of ornament or other use and, being relatively scarce, they thus acquire a high unit value. Further, because they are in the nature of luxuries rather than necessities, and because they are very durable (so that the annual production constitutes but a trifling portion of the total stock), they have a *stability of value* which is greater than that of most other goods. With respect to stability of value, gold surpasses silver. Gold also contains a greater value per unit of bulk than does silver, so that it is more conveniently handled when payments of large size have to be made. It is, perhaps, these two points of superiority—particularly the first—which have resulted in the final choice of gold by the majority of advanced nations as the basis for their monetary systems.

Paper money.—One other type of money which has developed in conjunction with the use of gold and silver and which plays an important part in modern monetary systems is paper money. The characteristics of this sort of money will be dealt with later in the chapter. For the present, we shall merely note that it is, as a rule, more convenient to use than metallic money, and that its use frequently, though not always, results in an economy in the amount of gold or silver that is necessary for the proper functioning of the monetary system. Paper money was widely used in China as early as the twelfth century,[7] and it has found extensive use in the

[7] *The Travels of Marco Polo,* Chapter XXIV, footnote (New York, 1926).

form of bank notes for over a century in practically all civilized countries.[8]

In connection with the evolution of paper money, as also with the other sorts of money already described, it must be remembered that its development has been closely related to the state of civilization in various countries and at different times. The ancient civilizations in China and the Mediterranean region had more advanced monetary systems than those of the Dark Ages hundreds and even thousands of years later, while at the present time there are tribes of natives who still use beads and trinkets as money, and undeveloped or isolated peoples who still make use of some commodity in this capacity. We are not particularly concerned with either the ancient monetary systems or the present crude exchange methods of certain peoples and regions. Rather, we shall concentrate our attention throughout this and the two following chapters upon the characteristics of modern monetary systems which are typical of advanced countries. To this end, we must first obtain a clear notion of the attributes of such a typical system.

The characteristics of the typical monetary system.—The monetary system of the modern advanced country comprises *the entire group of arrangements whereby exchanges of goods and services are mediated and the monetary needs of the country provided for.* This group of arrangements may, for purposes of study, be naturally and conveniently divided into two parts which include (1) the governmental aspects, and (2) the banking aspects, of the monetary system. Under the former head, we shall consider the standard of value, the denomination system, provisions relating to legal tender and coinage, and the various kinds of money which are coined

[8] "It was left, however, for the sixteenth century of our era to develop the bank note in something like its modern form, and for the nineteenth century to spread its use over the civilized world." Conant, *A History of Modern Banks of Issue*, p. 1 (New York-London, 1927).

or issued by the government. The matter considered under the second head will relate to the use of bank notes and to the check system. The remainder of this chapter will be devoted to a treatment of the governmental phases of the typical monetary system, while the currency aspects of the banking system will be taken up in the two following chapters.

The Standard of Value

The rôle of the standard of value in the monetary system. —The service of money as a general measure or standard of values has been described in some detail in the preceding chapter and requires no further elucidation at this point. It is necessary, however, to indicate the nature of the part played by the standard of value *within the monetary system.* Its chief function in this connection is to *fix the value* of all the different kinds of money which are used in the system. The performance of this function may be accomplished by (1) *incorporating* the standard of value in the money itself, or (2) *redeeming* or *converting* the moneys of the system in the standard of value. Modern countries as a rule have resorted to a combination of both methods, embodying the standard of value in one kind of money and then providing for the conversion of all other moneys of the system, directly or indirectly, into the money containing the standard.

While it is the practice of most nations actually to incorporate the standard of value in one kind of money, such procedure is not essential to the use of a certain standard of value. Kublai Khan, the Emperor of Asia, for example, apparently had no gold or silver money in use, at least in China, in the thirteenth century, yet gold or silver could be obtained for the Khan's paper money when it was desired for other than monetary purposes.[9] Thus the value of the

[9] *The Travels of Marco Polo,* Chapter XXIV.

paper money was fixed by that of the gold and silver into which it could be converted, even though neither of the metals was coined into money.

Another function of the standard of value is to *settle balances* in international trade. Most of the advanced countries have adopted gold as a standard for reasons already noted, and gold, as a result, forms an acceptable medium for making international payments. The money of one country is not acceptable, in the ordinary run of events, by the people of foreign nations. But gold, being the basis of their own monetary systems, is readily acceptable either in the form of bullion or of coin. They will not use the latter directly as money, but since it contains the standard of value, they will accept it and have it re-stamped into the coin of their own country. This is proved by the fact that it is accepted only by weight and not by tale or count. It is not the money, but the standard of value contained in it, that makes gold coin acceptable in the payment of foreign balances, so that this function belongs to the standard of value *per se* in gold standard countries.

Different possible standards.—Although gold has come to occupy the leading position as the standard of value for highly developed commercial countries since the last quarter of the nineteenth century, other standards have been widely used at times while still others have been suggested for the future. It seems advisable, therefore, to give a brief description of these various standards, although any critical estimate of their relative desirability will have to await a further study of monetary principles.[10] The most important types of systems, classified according to the standard of value, which have been either used or suggested are (1) monometallism, (2) bimetallism, (3) symmetallism, (4) the paper standard, and (5) the multiple standard. We shall consider these systems in the order named.

[10] For such a critical estimate, see the final chapter of this book.

A. *Monometallism.*—A country is said to be upon a monometallic standard when one metal only is freely coined and made full legal tender in the payment of debts, and when all the other moneys of the system are directly or indirectly convertible into the money coined from the standard metal. Further, those obtaining the latter type of money by the conversion of other moneys into it must be allowed to export it or melt it down for use in the arts. This statement should be qualified by noting that it is really not essential that the standard metal be coined, although this procedure is usually followed. So long as the moneys of the system may be freely converted into the standard metal and vice versa, that metal will fix the value of these moneys and the system will be monometallic. This qualification is necessary to cover the case of those countries in which the moneys of the system may be converted into gold or gold exchange, and vice versa, although no gold money is coined. This is ordinarily termed the gold-exchange standard, but is monometallic since the value of a single metal—gold—fixes the value of the moneys of the system. Under the head of monometallism, then, we may include such systems as have a gold standard, gold-exchange standard, or silver standard.

B. *Bimetallism.*—The bimetallic standard exists when a country freely coins either gold *or* silver at a fixed ratio, redeems the other moneys of the system in either gold or silver, and permits the export or melting of the coins so obtained. Both the gold and silver coins so provided are made full legal tender in the payment of debts, so that either type is equally desirable for the making of domestic payments. If the ratio at which the two metals are coined at the mint is the same as the ratio of their values in the market, both silver and gold coins will be used side by side. If the mint ratio diverges from the market ratio, however, one or the other of the two metals will be worth more as bullion than as money and will disappear from use, thus placing the system—prac-

tically—on a monometallic basis. Nevertheless, *legal* bimetallism is still said to exist as long as the mint will freely coin either gold or silver at the specified ratio, whether one of the metals ceases to be offered for coinage or not.[11]

C. *Symmetallism.*—A country would be on a symmetallic standard if its moneys were redeemable in gold and silver in specified proportions. Such a system differs from bimetallism in that the standard of value would be gold *and* silver instead of gold *or* silver. If standard coins were minted, they would contain both gold and silver alloyed in a certain definite proportion. If not, the moneys of the country would be redeemable in so much gold plus so much silver in the designated proportion. A legally authorized symmetallic standard has never been tried, to our knowledge, but suggests a possible substitute for the monometallic or bimetallic standards.[12]

D. *The paper standard.*—When a country which has been on a metallic standard issues paper money with full legal tender powers and refuses to redeem this money in the standard metal (or metals) as formerly, it is said to be on a paper standard since the paper money issued by the government is irredeemable in any metal or other good of any description. Evidence will be presented in a later chapter (Chapter XI), however, to show that the real standard of value, in such cases, continues to be the metal formerly used, the value of the paper money being fixed, in large part, by the likelihood of future redemption in the metal. This being the case, the paper standard can scarcely be considered as a standard of value at all, but it is mentioned here because of the wide use of the term in connection with issues of inconvertible paper money.

[11] A full description of the working of the bimetallic standard in practice will be given in a later chapter on the circulation of money (Chapter V).

[12] See Taylor, *Some Chapters on Money*, p. 42.

E. *The multiple standard.*—The system employing the multiple standard would have to maintain the moneys of the system at an equality in value, not with some single good, but with a whole bill of goods. The standard of value would then be the value attaching to eggs plus milk plus wheat plus corn plus potatoes plus other designated goods in certain recognized proportions. As it would obviously be impossible to redeem the moneys of the system at any time in the goods themselves, the value of the money would have to be kept equal to that of the bill of goods by so regulating the *quantity* of money that a given unit would always purchase the same total value of such goods as were employed in the designation of the standard. This plan has not been tried, but must be given mention here as it has been widely advocated in recent years by a number of prominent writers in the monetary field.

The present importance of the standard of value.—The wide resort to gold as a standard of value is probably to be explained (as in the preceding section) by the fact that, originally, this metal best fulfilled the necessary requirements both of a satisfactory standard and of a good medium of exchange at a time when it was customary actually to incorporate the standard in the exchange medium. The ever-increasing use of paper money of various types has resulted, to a large extent, in the specialized use of gold in the standard of value function, so that its retention is to be justified at present chiefly on its satisfactory fulfillment of that function without particular regard to its other desirable money qualities. Since the standard is still used in the settling of foreign balances, and since it is held within the country for indefinite periods in the form of bank and treasury reserves for redemption purposes, it follows that portability, durability, and stability of value are now the most essential characteristics of a good standard of value. These gold possesses in large measure, and the retention of this

metal as a standard is thus justified.[13] We must now turn our attention to some of the other characteristics of the monetary system.

The Denomination System

The need for a system of denominations.—In order to overcome that difficulty of barter which arises out of the indivisibility of the larger and more valuable goods to be exchanged, it is essential that money be divisible. Of course, the difficulty could be solved by having money of one denomination only which would be equal in value to the smallest article a person would be likely to wish to buy, but such a plan would require the use of a tremendous number of units of money and would be highly inconvenient in making large purchases. Try to imagine the disutility of having to pay, or receive payment, for a house and lot in cents only, and the inexpediency of such a simple system becomes obvious. It is for the purpose of preventing such an unhandy situation, while still permitting small payments to be made conveniently, that a denomination system must be established.

The monetary unit.—The basis of the denomination system is the monetary unit. This is the primary denomination—"that denomination which is thought of as *fundamental* in the system, the other denominations being referred to it in defining their value." [14] In a gold standard country, the value of the primary unit is fixed by law as a certain weight of gold of a specified fineness, which is given a definite name. The monetary unit of the United States, for example, is called a dollar; of France, a franc; of England, a pound; and of Germany, a mark. Since the monetary unit is a unit of value, it is really the value of the specified weight of gold, rather than the gold itself, which constitutes

[13] More will be said on this subject in the last chapter.
[14] Taylor, *op. cit.*, p. 35.

the unit. It is more convenient, however, to refer to a given unit of value as so many grains (or grams) of gold, and no harm is done as long as the real meaning is understood.

There is no *necessary* connection between the name of the monetary unit and its gold value at different times. The name of the unit is usually retained even though its gold value has been changed as a result of legislation altering the gold content of the unit or because of a temporary resort to the so-called paper standard in time of emergency. Following the Great War, for example, when Germany was not redeeming her paper money in gold, the gold value of the mark, as measured in the money of the United States, reached a point below 0.0000000000025 cent,[15] although it had been worth 23.82 cents before the war. Since 1923, through a process of practical repudiation, the gold value of the mark has been restored to its pre-war figure.

Other denominations.—The precise value of the monetary unit (providing it is left unchanged) is a matter of indifference so long as various multiples and fractions of this unit are made available for the convenience of the public in making payments of varying sizes. The fractional denominations are necessary for making change and for purchasing cheap commodities, so that this type of money is used almost entirely in hand-to-hand circulation. The monetary unit and, perhaps, its smaller multiples (depending upon the value of the unit) are used both in circulation and in the reserves of the banks, while a predominant proportion of the larger multiples of the monetary unit is retained in the reserves of financial institutions, since they are too large to be of use for ordinary circulation purposes.

In deciding the specific denominations to be used, other than the monetary unit itself, the majority of modern nations

[15] *Foreign Exchange Quotations and Curves*, Commission of Gold and Silver Inquiry, United States Senate, graph 9 (Washington, 1924).

have favored what is known as the decimal system in which the fractional denominations are designated as so many tenths or hundredths of the monetary unit, while the larger denominations are in multiples of ten or fractions of such multiples. Thus, in France, 100 centimes equal one franc and, before the war, coins of 20 centimes, 50 centimes, and 1, 2, 5, 10, 20, 50, and 100 francs were provided for. The advantage of the decimal system lies in the ease of calculation on a decimal basis, as contrasted with the haphazard denomination system of England where 4 farthings equal 1 penny, 12 pence equal 1 shilling, 20 shillings equal 1 pound, and 21 shillings equal 1 guinea.

Legal Tender

The nature of legal tender.—In addition to legal provisions for a standard of value and a denomination system, the monetary laws also specify precisely the legal tender privileges attaching to each of the various denominations and kinds of money which are issued. By legal tender is meant *a right extended by law to certain types of money which makes such moneys valid in the payment of debts, provided that there is no contract or agreement to the contrary.* The refusal of a creditor to accept money with such legal tender powers when tendered to him in the exact amount of the debt relieves the debtor of all obligations to pay interest from the date on which payment was tendered. Such refusal, however, does not cancel the debt itself, but prevents the creditor from obtaining damages from the debtor for nonpayment. The purpose of legal tender provisions is simply to enable the courts to determine, in disputed cases, whether or not a satisfactory offer of payment has been made in an unqualified money contract. This does not mean that legal tender is invariably, or even frequently, used in the payment of debts, for some other type of money may be more

convenient to both creditor and debtor. Nevertheless, when there are several different types of money in use, and when most contracts call for payment in money without specifying any particular kind of money, it is almost inevitable that the law should designate the kind (or kinds) of money which shall be deemed legally satisfactory in the fulfillment of such obligations.

In the broadest sense, legal tender applies to all debts, public and private, and such full legal tender powers are usually conferred only upon standard coin, or such government or central bank notes as are secured by a substantial percentage of standard coin or bullion. Legal tender powers which are limited to specified payments or amounts are also, at times, bestowed upon some other types of money.

The granting of legal tender powers tends to make money more acceptable than it might otherwise be, for it gives the recipient the power to use such money, once he has received it, in the discharge of any or all of his obligations. In the case of gold coin this is not of great importance, since such money embodies the standard of value itself, but if some less valuable money which is not redeemable in gold is made full legal tender, it has a tendency to stay in circulation when it would not otherwise do so and will so tend to displace the full-bodied money. Of this phase of legal tender, more will be said in a later chapter (Chapter V).

Coinage

Coins and mints.—Before proceeding with a discussion of the different kinds of money ordinarily in use, it will be well to consider the nature of the machinery by means of which these moneys are brought into being. In the case of metallic money, the laws of the country typically provide for the manufacture of coins by the government. A coin is *a piece of metal of specified weight and fineness, stamped with some*

particular design, and made with a view to its use as money. Although coins of a given type always contain a specific amount of metal, they are not looked on as so much metal, but as so much money. To illustrate, a person receiving a gold sovereign in England does not give a thought to the fact that he is getting 113.0015 grains of fine gold, his interest being in the sovereign as a unit of money and not as a certain weight of metal. This is as it should be, for it would be a great inconvenience to have to weigh metal each time it changed hands as a medium of exchange, but in order to make such weighing unnecessary it is imperative that all coins of a given kind should be alike. The necessity for coins which are uniform in weight and fineness and which are easily recognized as money has led to the coinage of metallic money exclusively by the government in all advanced countries, and the monetary laws of these nations provide for the establishment and operation of mints for this purpose.

Coinage terms and practices.—It is not intended, in a work of this sort, to enter into any discussion of the history or the technique of coinage. A few terms frequently used in connection with the coinage of money should be explained, however, as well as some of the principles and practices which are commonly followed.

Coins are not ordinarily made from the pure metal, but are alloyed with some other metal or metals in order to give them greater strength and general durability for circulation purposes. There need be no fixed ratio of pure metal to alloy in every case in order to manufacture a satisfactory coin, and the ratio actually used is likely to be the result of long-standing custom, international agreement, or mere chance. The gold coins minted in the United States contain 900 parts of pure gold and 100 parts of alloy, and are consequently said to be $\frac{9}{10}$ fine, while the gold coins of England contain 916.67 parts of pure gold out of 1000 and are hence

$^{11}/_{12}$ fine. The difference in the fineness of the United States and English gold coins is consequently relatively slight and either type of coin is perfectly satisfactory from the standpoint of technique. The majority of commercial nations have, nevertheless, adopted coins of a fineness of $^{9}/_{10}$, and this particular ratio may be recommended on the grounds of international uniformity.

The same fineness that is used in the making of the gold coins may or may not be adopted for fractional coins. These are ordinarily made from silver, or one of the baser metals, and are not used in international payments, so that the exact degree of fineness is a matter of no great moment. Subsidiary coins, for reasons to be discussed later in the chapter, are made short in weight (i.e., they gave a greater value as money than as metal), and this may be accomplished by (1) decreasing the fineness of these coins, or (2) using the same fineness as in the gold coins and decreasing the amount of metal used in their manufacture. The former method was adopted by France in 1865, when the fineness of the silver subsidiary coins was reduced from .900 to .835, and the latter by the United States in 1853, when the weight of the fractional silver coins was decreased although the old fineness of .900 was retained.

When a country adopts a given metal as a standard of value and coins that metal, the coinage of it is always free and usually gratuitous. The distinction between these two terms is as follows: A country is said to have *free coinage* if anyone is allowed to bring the standard metal to the mint and have it turned into coin at a cost not greater than the cost of minting. If the cost of minting is passed on to those bringing the metal to the mint, the coinage—though free—is not gratuitous. If, however, the mint absorbs the cost of coining the metal, the coinage is free and *gratuitous* as well. It should be clearly understood that the levying of a small charge to cover the actual cost of minting does not interfere

with the freedom of the coinage, so long as anyone having bullion may take it to the mint, pay the minting charges, and receive the coined metal in return.

The aforementioned charge, which just covers the cost of minting the coin, is known as *brassage.* At times, as in the case of subsidiary coins, the government may put into the coins a smaller value of metal than the face value of the coins. When this is done the government buys the metal used and has the coins minted from it. Such procedure is known as *coinage for government account* or *limited coinage,* as contrasted with the free coinage already mentioned. When the government pays out such short weight coins it receives a profit resulting from the short value of the metal in them. This profit is called *seigniorage,* and represents the difference between the metallic value of the coins and their face or money value less brassage. Since the total of such coins forms but a small percentage of the total amount of money used in a modern country, the revenue to the state from this source is not great. Further, too great a seigniorage is conducive to counterfeiting and should be avoided.

In the actual minting of the coins, certain rules should be observed. First, the coins should be of a proper size. Jevons[16] mentions certain eighteenth century coins in Sweden which were 7½ inches square and weighed 3½ pounds. These were obviously of such unwieldy proportions as to make them absurd. On the other hand, the United States discontinued the coinage of the gold dollar in 1890, because it was so small as to be highly inconvenient. Second, in addition to convenience of size, coins should be made in such a fashion as to discourage clipping and counterfeiting. Clipping is prevented by milling the edges of the coins or by the inscription of a legend along their edges. The milled edge, together with an intricate design, also helps to prevent counterfeiting by making imitation of the coins difficult to

[16] *Op. cit.*, p. 58.

accomplish. Lastly, the coins should be stamped with a design, easily recognized and as attractive as possible.

The manufacture of paper money.—Although distinct from the question of coinage, the manufacture of paper money may be given brief mention. It is desirable that the engraving and printing of paper money be left in the hands of the government. This is the case in the United States, for example, where the Bureau of Engraving and Printing at Washington manufactures all the hand-to-hand paper money that is used in the United States, including the notes of the issuing banks. The advantage in this lies in the fact that uniformity in size and design is possible of attainment as well as sufficient intricacy of design to make counterfeiting difficult. A special type of paper is also used in the United States which helps to prevent imitation. The new paper money "Series of 1928," which has recently been put into circulation, is made of uniform design for all notes of a given denomination, whereas former series have had different designs for each different type of note. This will make for more ready recognition of each denomination of paper money by all classes of people and will thus increase the difficulty of counterfeiting such money.[17]

Kinds of Money

Full-bodied and credit money.—The moneys which are found in the typical monetary system may naturally be divided into two fundamental groups. They are (a) full-bodied money, and (b) credit money. Money is full-bodied when its value as a commodity is as great as its value as money. That is, a full-bodied coin must contain enough

[17] *The Commercial & Financial Chronicle*, June 1, 1929, p. 3618, contains a description of the new currency. The notes are made one-third smaller in size than the old notes, the purpose being to reduce expense.

metal so that its bullion and money values are the same. Prior to the outbreak of the Great War, practically all of the gold standard countries provided for the minting of full-bodied gold coins and, since these coins actually embodied the standard of value, they were called standard money, a terminology which still exists. Such a use of the term standard money is perfectly correct, but its use has long been extended to include some other types of money which are not full-bodied. The Philippine Islands, for example, have what is known as a gold-exchange standard. The coined monetary unit of the Philippines is the peso, a silver coin, which normally contains less than 50 cents' worth of silver. The value of the peso, however, is kept equal to 50 cents by providing for the redemption of pesos in New York gold exchange at the rate of 10,000 pesos to $5,000, or, upon the payment of a sum equal to the transportation charges from the United States, pesos may be converted into gold in the Philippines at the same rate. The standard unit of value of these islands is therefore 12.9 grains of gold, nine-tenths fine, and it is so defined in the United States coinage laws. The coined peso does not contain the standard of value and is worth less as metal than as money, yet it is ordinarily called the standard money of the Philippines, and usage makes it practically impossible to deviate from this course. It is necessary, however, not to confuse full-bodied money with the so-called standard money of the sort mentioned, and to remember that standard money, to have any real mark of distinction from the other moneys of the system, should actually contain the standard or value.

When standard money is conceived as full-bodied money, its functions are naturally the same as those attributed to the standard of value. It fixes the value of the other moneys and, in so doing, becomes the basic money of the system. It also serves, in gold standard countries, as a means of foreign payment. It derives these functions from its gold con-

tent, however, and not from its coined form. The latter does, of course, make it useful as a domestic medium of exchange, but this function is by no means distinctive of standard money alone. Standard money is always made full legal tender and this is sometimes, though not always, a distinctive feature of such money.

Representative money.—Before going on to a discussion of the second main type of money (credit money), it is necessary to mention one type of money which is neither full-bodied nor credit, and this we shall call representative money. If gold coin (or bullion) is taken to the Treasury of the United States, it may be exchanged for an equal amount of gold certificates. The latter are merely warehouse receipts for so much deposited gold, and the recipient of the gold certificates no more becomes the creditor of the government than he would become the creditor of the warehouseman with whom he has stored cotton and from whom he has obtained receipts therefor. Such money is representative money in the fullest sense, since it represents actual money or gold that has been deposited. If a country issues such gold certificates in exchange for deposited coin or bullion, they should be included as standard money. Their use simply forms one way of circulating gold as contrasted with its circulation in the form of coin.

On the other hand, if similar certificates are issued against some form of credit money, they should be considered as part of the country's stock of that credit money against which they are issued. It is only proper, therefore, to class representative money as standard when it is issued against deposits of standard coin or bullion. As a matter of fact, in drawing fundamental distinctions between the different kinds of money in the system, certificates of the sort described may be left out of account entirely, merely the moneys they represent being included.

Credit money.—We shall consider as credit money any

sort of instrument which is widely used as a means of payment and which, when so used, permits an economy in the need for full-bodied money or bullion. Such money may originate with the government or with the central or individual banks of the system. The types of credit money for which the banks are responsible will be discussed later. For the present, we shall confine our attention to the various possible kinds of government credit money.

Government credit money may be either paper or metallic. If the government issues formal promises to pay standard money to the bearer on demand in the form of paper notes, the recipient of such notes becomes the creditor of the government. As long as the holders of such notes are confident that the government will convert them into standard coin or bullion upon demand, very few will be presented for redemption, and the government may—if it so desires—effect a considerable saving in the amount of standard money which it must keep on hand for redemption purposes, a reserve of 50 per cent of the outstanding notes being ample to maintain convertibility upon all except the most extraordinary occasions. Such government notes may be given substantial, if not complete, legal tender powers and, in almost all domestic transactions, they then become a substitute for standard money, and are used partly to form bank reserves (for the redemption of bank credit money) and partly in general circulation. Thus they resemble gold certificates, but differ from the latter in that a saving in gold may be effected by their use, while no such saving is possible with the use of the representative certificates.

Metallic coins which are, in effect, credit money may also be issued by the government. If a country which is upon a gold standard, for example, puts into circulation silver coins the metallic content of which is worth less than the face money value (as measured in standard money), and then keeps these coins at par with the standard money by making

them convertible into it, such coins are credit money even if the promise to convert them into standard money is not specifically stated upon their face. And, if the government confers upon these coins practically complete legal tender powers, they become nothing more than silver notes which differ from the paper notes we have described only in the cost of the substance from which they are made. Neither the paper nor the silver is worth as much, *per se,* as the money into which it is made, their value as money being maintained by the possibility of converting them, directly or indirectly, into standard money when desired. This, as we shall see later, is the case with the silver dollars issued by the United States government. The recipient of such money becomes the creditor of the government. He does not receive full value in the form of silver when he accepts these coins and must depend upon the government to keep their value equal to that of standard money, and a saving in gold is clearly possible, and existent, when such short weight silver coins are issued. As in the case of gold certificates, if silver certificates are issued against deposits of short weight silver coins, they may be considered as one way of circulating the silver and hence identical with the type of money they represent.

Subsidiary money.—Metallic credit money is also issued by the government in the form of *subsidiary money.* Such money is for the purpose of making change and is consequently coined in small (fractional) denominations. Aside from this, subsidiary money has other special characteristics. (1) It is made *short in weight,* so that it is worth more as money than as metal and will not be melted down. (2) The *amount* of subsidiary money is *limited* to the needs of business, and such money is therefore coined on government account. If everyone were permitted to take the metal from which subsidiary coins are made to the mint and receive in exchange the corresponding

coins with a monetary value much in excess of the value of the metal they contain, the operation would be so profitable that the country would soon be flooded with subsidiary coins and their value would depreciate. To avoid this the government buys the necessary metal and coins only a sufficient number to satisfy the needs of trade. (3) Subsidiary coins are made of some metal which is *less valuable* than that contained in the standard money as a general rule. Otherwise, either the fractional coins would have to be so small as to be practically useless, or the standard coins so large as to be very cumbersome. (4) Since large amounts of fractional coin are a nuisance when received in payment, the law usually *limits the legal tender* power of such coins to payments of relatively small size. (5) Lastly, subsidiary coins are usually made directly convertible into standard money. This is not absolutely essential, as such coins may be kept at par by a judicious limitation of their amount, but the convertibility feature gives an added insurance against their depreciation.

Subsidiary coins are usually made out of silver, although the very small denominations are ordinarily made from nickel, copper, or bronze in order to permit coins of usable size. The latter are called *minor coins* to distinguish them from their more valuable silver associates, but have similar characteristics. Although fractional paper money has been issued at times in the past, this is not considered a desirable practice because of the tremendous wear and tear to which such money is subjected, and today a metallic fractional currency is used by all countries under normal conditions. Subsidiary money is to be classed as credit money for the same reasons that led us to include the larger denomination short weight silver coins previously described in that category.

A classification of money.—In concluding this survey of the different kinds of money which are issued by the gov-

ernment, it will, perhaps, make for clarity if we attempt a classification of these moneys in the form of a compact table. Although the two kinds of credit money for which the banks are responsible (bank notes and the check currency) have not yet received attention, we shall anticipate a bit and include them in the classification for the sake of completeness. Regarding representative money as synonymous with the metallic coin which it represents, the table may be drawn up as follows:

I. Standard of value
   A. Gold
   B. Silver
   C. Gold or silver

II. Standard money
   A. Full-bodied coin (and certificates)
   B. Standard credit money (e.g., Philippine peso)

III. Credit money
   A. Government credit money
      1. Paper promises to pay standard money
      2. Short weight metallic money
         a. Unit and larger denominations
         b. Subsidiary money
   B. Bank credit money
      1. Bank notes
      2. Check currency

No attempt has been made to indicate the legal tender powers of the different kinds of money for the reason that the bestowal of these powers is in the hands of the lawmakers and hence no uniform policy can be said to exist. Standard money is always made full legal tender, while the check currency is never granted such powers as a normal thing. The other classes of money, however, may be granted full, partial, or no valid tender privileges, depending upon the whim of the legislature.

The only excuse for creating a class of money called *standard credit money* is the practice of calling such money

as the silver peso of the Philippines standard money. It is a form of government credit money, fundamentally, and is only elevated to a higher class in the foregoing table in deference to general usage.

QUESTIONS FOR STUDY

1. Trace the evolution of money through the following stages of social and economic development: (a) the hunting stage, (b) the pastoral stage, (c) the agricultural stage, and (d) the manufacturing stage.
2. Why have gold and silver been chosen in preference to other metals or commodities to serve as money?
3. Distinguish between the part played by the standard of value in the monetary system and the rôle of money in the economic system as a measure of value.
4. Describe briefly the essential characteristics of the various possible standards of value.
5. Why is a denomination system necessary? What is the distinction between the primary denomination and other denominations?
6. What should be the real purpose of clothing some particular kind (or kinds) of money with legal tender powers?
7. Define or explain the following terms: (1) coin, (2) .900 fine, (3) free coinage, (4) free and gratuitous coinage, (5) limited coinage, (6) brassage, and (7) seigniorage.
8. What is meant by full-bodied money?
9. Define credit money.
10. How does representative money (as we have defined it) differ from credit money?
11. Why is it that a heavy metal coin such as the silver dollar is classed as credit money rather than as full-bodied money?
12. Describe the characteristics of subsidiary coins and explain the reason for each characteristic.
13. Try to classify the different kinds of money on some other basis than that used for the classification in the text.

BIBLIOGRAPHICAL NOTE

An excellent volume on the early forms of money is A. R. Burns, *Money and Monetary Policy in Early Times* (New York, 1927). Sir W. Ridgeway, *The Origin of Metallic Currency and Weight Standards* (Cambridge, 1892), is a thoroughly scholarly piece of work which is of great value to the student of early monetary conditions. A brief, but well annotated, account of the earlier and cruder forms

of money and of its historical development is to be found in W. Roscher, *Principles of Political Economy* (Lalor's translation, Chicago, 1882). W. S. Jevons, *Money and the Mechanism of Exchange,* also contains a good account of the development and use of different kinds of money. A number of other general works on money, among them H. White, *Money and Banking,* and J. L. Laughlin, *The Principles of Money,* contain more or less extended references to the early use of money in the United States and elsewhere.

The general nature and the method of presentation of the material in the latter part of this chapter were suggested to me by F. M. Taylor's chapter of the same name (Chapter II) in his *Some Chapters on Money.* Many interesting facts which are illustrative of such a presentation are to be found in a government pamphlet, compiled in the Office of the Director of the Mint (1916), entitled *Monetary Systems of the Principal Countries of the World.* The more recent arrangements in the European countries are contained in J. P. Young, *European Currency and Finance.*

The characteristics of the different kinds of money are clearly described and the various sorts of money well classified on a functional basis in Professor Taylor's chapter, cited above. D. H. Robertson, *Money,* Chapter III, Section I, contains an entertaining description of the different kinds of money which closes with an instructive tabular classification (p. 47). A thorough and stimulating study of various kinds of money, but one which is difficult to follow is to be found in G. F. Knapp, *The State Theory of Money,* Chapters I-III inclusive. Chapter IV contains an historical review of currency and monetary conditions in England, France, Germany, and Austria, but this chapter has been omitted in the English translation.

CHAPTER III

BANK NOTE ISSUES

The importance of bank notes.—In the preceding chapter, the governmental phases of the typical monetary system were set forth in some detail, with but a casual reference or two to the types of money which result from the operations of the banking system. In the present chapter, it is proposed to enter into a thorough consideration of one of the two types of money for which the banking system is primarily responsible, namely, the bank note. In most of the continental countries of Europe, where the use of checks as means of payment is still decidedly limited, the bank note constitutes one of the outstanding elements of the monetary system. In England, Canada, and the United States, the importance of this instrument is somewhat dimmed by the wide use of checks in a monetary capacity; yet even in these countries, the bank note is the most widely used form of hand-to-hand money (money which circulates without indorsement) in the more sizeable denominations. If money is defined, as we have defined it, as anything which is used primarily as a medium of exchange, the significance of the bank note as one form of money becomes obvious.

Bank notes a form of credit money.—A bank note is the formal promise of a bank to pay to the bearer on demand a certain designated sum in standard money or some form of government credit money. Upon the acceptance of a bank note, the recipient enters into a debtor-creditor relationship

with the issuing bank, the bank becoming the debtor and the noteholder the creditor. The bank note is thus, legally, a form of credit instrument, but, from the point of view of monetary theory, the mere existence of this debtor-creditor relationship is of less significance than the economy in the use of government money which may, and usually does, result from the use of bank notes. If the system of note issue is satisfactory, bank notes will be readily accepted in exchange for goods and services, and seldom, if ever, will the issuing bank be confronted with the necessity of redeeming any large proportion of its note issues at any one time. In consequence, it is not necessary for the issuing bank to keep 100 per cent of its circulating notes in the form of government money for redemption purposes. Actually, the redemption reserve which must be maintained to insure safety is but a fraction of the notes in circulation, and an important economy of government money is thereby effected. In order that bank notes shall act satisfactorily in the performance of the monetary functions, however, it is necessary that the system of note issue shall comply with three definite requirements. (1) The bank note issues must be kept at par with standard money; (2) they must be adequately secured; and (3) they must have elasticity of the proper sort. We shall now consider these three prime requisites of a satisfactory system of note issue in the order in which they have been named.

Parity

The necessity for maintaining bank notes at par.—It should be obvious that bank notes must be maintained at par with the standard money if they are not to disrupt the smooth working of the entire monetary system. Every dollar should be kept equal in value to every other dollar. If this is not done, the cheaper money will only circulate at a discount, with an attendant disruption of trade, or, if

it has substantial legal tender powers, it will drive the better money out of circulation, if issued in excess, and usurp the place of the standard. The notes of many of the European central banks are granted legal tender powers, but the issues of other banks are not likely to be given legal tender rights in any substantial degree, and the circulation of the latter type of notes at a discount is likely to result from inadequate regulations for maintaining them at par with the standard money. In either event, it is necessary to inquire into the nature of the regulations which are essential to the maintenance of parity.

Ready convertibility.—The most important requirement for the maintenance of parity is that the notes shall be readily convertible into standard money, or, at least, into government legal tender which is itself convertible. The use of the word *readily* in the preceding sentence must be emphasized. In a country of large size it is not sufficient merely to provide for the redemption of notes over the counter of the issuing bank. A note may be in circulation at a point far distant from the bank that has issued it, in which case the process of getting the note to the bank of issue and obtaining the corresponding amount of government money from that bank is annoying and, to a certain extent, costly, so that a local banker would not be inclined to redeem the note without deducting a certain amount from its face value to pay for the trouble and expense of sending it home for redemption. An excellent illustration of this is to be found in the set of circumstances which led to the development of the Suffolk system in Boston and New England in the early part of the nineteenth century. The notes of the New England country banks got into circulation in Boston where they could be redeemed only through the cumbersome and costly procedure of sending them back to the issuing banks. Consequently, when holders of country bank notes presented them to the Boston banks for redemption, a dis-

count commensurate with the expense of sending the notes back to the issuing banks was deducted from the face of such notes by the Boston bankers. These bankers, on the other hand, were forced to redeem their own notes at par. The result was that the citizens of Boston kept the country bank notes for ordinary spending purposes and brought in the notes of the local banks for redemption whenever they needed specie, with the result that the Boston institutions had difficulty in keeping their own notes in circulation, while the notes of the country banks continued to circulate, albeit at somewhat of a discount.

The remedy adopted by the Suffolk Bank of Boston was to redeem the notes of the country banks at par and then persuade the latter institutions to maintain deposits with it for this purpose by threatening to collect quantities of their notes and send them home for redemption in large amounts. Such a procedure would have proved embarrassing to the country banks (and, in fact, did prove so in the cases where the Suffolk Bank was forced to use this method against recalcitrant institutions), so that they all agreed, sooner or later, to keep the necessary deposits with the Suffolk Bank. After that, the notes of the country banks circulated readily at par, both in Boston and other parts of the surrounding territory.[1]

The ready convertibility of bank notes may best be accomplished by maintaining a number of redemption agencies at conveniently located points, preferably in financial centers where the surrounding country bankers will be likely to have deposit accounts. Under such a system, any country bank would be willing to redeem another bank's notes at par, even though the latter institution were located at a distant point, for it could use these notes for the purpose of building up its balance in some nearby financial center where a redemption agency was maintained. The banks in the financial centers

1 White, *Money and Banking*, Chapter IX.

also would redeem notes of distant banks at par since such notes could be converted into government money locally through one of the established redemption agencies. Or, in place of such a plan, the government might itself act as a redemption agency and provide for the conversion of the notes at a number of conveniently located points.

Other devices to insure parity.—In addition to the provisions mentioned, certain supplementary devices may be employed to insure the maintenance of parity. Such notes may, for instance, be accepted by the government as valid tender in the payment of taxes. In this case, even if the notes were not conveniently redeemable, they would be likely to remain at par if not issued in too great amounts. As long as the government will make its own disbursements in standard money if requested, yet will receive some other type of money in the payment of taxes and imposts, an indirect system of redemption is set up which will keep the other money at par with the standard. Individuals receiving bank notes with such tender privileges will use them to pay taxes and take some other type of money to the bank to be redeemed in standard money if the latter is desired.

In somewhat similar fashion, when the privilege of note issue is permitted to all the members of a given class of banks, the law may provide that such notes must be accepted at par by any bank in this group whether it happens to be the issuing bank or not. If banks of the issuing class are numerous, and hence are to be found in practically every community, it will prove easy to utilize the bank notes in the payment of bank debts or in the making of deposits, and there will be practically no tendency for the notes to depreciate in value, relatively to the standard money, even if the issuing bank is in some distant locality. Provisions of this sort, when combined with a judicious use of territorial redemption agencies, will prevent any departure in the value of the bank notes from that of the standard money.

Reserves against note issues.—Although machinery for the redemption of notes in the form of agencies at convenient points may be established, the final responsibility for converting any given bank note into lawful (government) money lies with the issuing bank, and it is therefore necessary for that institution to maintain some sort of reserve of lawful money for this purpose. The considerations which enter into the determination of the proper size for such bank note reserves will receive treatment at a later point in connection with the discussion of the value of money. For the present it is merely necessary to note that reserves of this sort must be maintained, and that the legal regulations governing the issuance of bank notes usually specify what proportion of the issuing banks' notes in circulation shall be held in lawful money for redemption purposes. In some countries, as in Canada, for example, the size of the reserve which is held is left to the discretion of the issuing bank, but in most cases definite reserve percentages are specified by law. Such legal reserve requirements, where they exist, come under the head of regulations designed to insure parity since the other regulations discussed can not be made to operate effectively unless the issuing bank is prepared to redeem such notes as are finally presented to it, either by the redemption agencies, the government, or others.

Security

Free credit issues.—With bank notes, as with any other credit instrument, the question of the security behind the notes is important. If no specific security is required by law to be kept behind issues of bank notes, and if the law imposes upon the issuing banks no special restrictions for the protection of noteholders, the resulting issues of bank notes are of the type which we shall call free credit issues. In the case of free credit issues, the noteholder is a general

creditor of the bank issuing the notes and ranks along with the depositor as regards his claim on the assets of the bank. If the bank fails, the assets will be liquidated and the depositors and noteholders will fare equally well or poorly with respect to the settlement of their claims. If the amount obtained from the sale of the bank's assets is sufficient to pay 75 cents on the dollar only, the noteholders, along with the depositors, will be forced to take a loss of 25 per cent. The only security behind the bank notes under such a system is the general condition or ultimate solvency of the banks which issue the notes.

Should the noteholder receive special protection? As a matter of fact, systems of note issue of the sort described do not exist in modern monetary systems. Such a system would have to operate on the assumption that there is no greater reason for protecting the noteholder than the ordinary bank depositor, and modern nations have been unwilling to proceed upon this assumption and have taken action to give some special sort of protection to the noteholder. On the whole, legislation designed to protect the bank note holder is justifiable for the following reasons: (1) The recipient of a bank note may well be quite unconscious of the fact that, in accepting the note, he has become the creditor of a given bank. These notes have the same general appearance as other kinds of paper money and will ordinarily be taken without thought as to whether they are the obligations of a bank or of the government. The bank depositor, on the contrary, is always conscious of his action when he deposits his funds with a given bank. (2) Even when an individual is conscious of the fact that he is receiving a bank note, he is frequently not in a position to refuse it should he desire to do so. The merchant, for example, dare not object too strenuously nor too often to the money tendered him by his customers, lest they become disgruntled and quit him for some less particular competitor. (3) In most trade trans-

actions of the type in which bank notes are used, there is scant time for reflection in making the decision. A person must either accept the note or refuse it, it being quite out of the question for him to ask for a couple of days to think it over before he decides whether to take the note or not. (4) Finally, the depositor is always in a position to ascertain the soundness of his bank if he wishes to take the trouble to do so. At least, he is likely to know the general reputation for soundness and good management which the bank holds in the community. The noteholder does not have this advantage, for many of the notes he receives have been issued by out-of-town banks about the condition of which he could probably find out little if he had an abundance of time—which he usually has not. In view of these reasons, it has become the practice of governments to provide special protection for noteholders through legal regulation of bank note issues.

Regulated issues.—Under this head we shall group all note issues which are subject to legal regulations of a general character which are designed to protect noteholders, but which do not require the issuing banks to maintain specific security behind their notes in circulation. Numerous regulations of this sort are to be found in the systems of note issue of different countries. Restrictions may be placed on the *number* of banks allowed the note issue privilege. Thus, in many foreign countries, this privilege is practically confined to the central bank of the system. Such a restriction, even when unaccompanied by others, adds materially to the protection enjoyed by the noteholders. The central bank is probably less likely to fail than any other bank in the system because of its conservative management and close relationship with the government. Then, also, most business men are familiar with the periodical reports of condition issued by the central institution, the appearance of which is a matter of wide general knowledge and interest. Again, as

in England, not only is the power to issue notes confined to the central bank, but to a distinct *department* of that bank which is entirely separated from the banking department. This further restriction adds to the security of the note issues by insuring that the banking department does not utilize the power to issue notes in the furtherance of its own ends.

Another method of regulating note issues is to limit the *amount* of notes which a given bank may issue. This may be done directly by specifying a certain figure above which note issues may not go, or indirectly by limiting the issuance of the notes to those of *higher denominations* or by *restricting the territory* in which the notes may circulate. The direct method is exemplified in France where the law specifies the upper limit to the note issues of the Bank of France. In some other countries, as Canada, for example, issues are limited to the paid-in capital of the issuing bank, and such limits on note issue may be classed as direct. With regard to the indirect methods of limiting the amount of bank note issues, a further word of explanation seems advisable. By restricting the bulk of the notes issued to the higher denominations, it becomes more difficult to put the notes into circulation as few individuals will be willing to accept the larger notes since they will not be able to dispose of them readily in the ordinary course of business. In restricting the territory in which the notes may circulate, the amount of notes which may be issued is clearly limited to a greater extent than if no such restriction prevailed. Restriction of territory may be accomplished by forbidding the banks of any one region to pay out over the counter the notes of banks located in other regions. Banks receiving the notes of other sections of the country will then have to send them home (or to the nearest redemption agency) for redemption and the notes will thus be withdrawn from circulation in that district. The law may also confer upon bank notes certain limited legal tender privileges in the district in which they are

issued, but not allow such privileges in any other region. This, also, will have a tendency to keep the notes from circulating to a marked extent outside of the section in which they have been issued.

Again, the government may protect the noteholder by giving him a *prior lien* on the assets of the issuing bank in case of the failure of that institution. If, then, the bank should fail, all noteholders must be paid off in full before any payment can be made to depositors or other creditors. In almost all cases, the liquidated assets of an insolvent bank will be sufficient to pay the noteholders in full, and even though they may fail to be adequate to pay both noteholders and depositors 100 cents on the dollar. If, in addition, the law provides that *interest* shall be paid on the notes of failed banks from the time of failure until settlement has been made, other banks will willingly accept these notes at par as an investment, and the noteholders will thus be allowed to recover the face amount of their notes immediately instead of being forced to wait throughout the entire period of liquidation, which may be rather prolonged.

The noteholder may be given added protection by provision for the maintenance of a *safety fund* from which the notes of failed banks may be redeemed. In the operation of such a system each bank contributes to the fund on some stipulated basis—usually the amount of notes which it has in circulation. Since it is highly improbable that any large proportion of the issuing banks will fail at any one time in a well-regulated banking system, the contribution of each bank to the fund need not be large, 5 per cent of the notes in circulation being ample for all practical purposes. The control of the fund is ordinarily in the hands of a government department which is authorized either to hold the contributions of the issuing banks in lawful money or to invest them in high-class securities. If the latter procedure is followed, holders of the notes of a failed bank will have to

await the sale of securities from the fund before they are able to redeem their notes. On the other hand, the banks receive the income from the securities of the fund in proportion to their contributions, so that it is less costly to them than it would be if the fund were held in the form of lawful money. If noteholders are given a prior lien on the assets of the issuing bank, and if interest is paid on the notes of failed banks from the time of failure until settlement is made to prevent their depreciation, there is no reason why the safety fund should not be invested in high grade, readily marketable securities.

Secured issues.—The regulations which have been considered thus far provide for a greater soundness in the system of note issue generally, but make no provision for specific security to be held against outstanding issues. In many systems of note issue some such specific security is required by law, and, when this is the case, the issues are said to be *secured.* In the past, *government bonds* have been widely used as security for bank notes. Bonds issued by the national government are considered, in most countries, to be the safest kind of investment, so that noteholders are adequately protected when such security is required. In some countries standard money is required or permitted as security for note issues. The Bank of England, for example, is permitted to have notes outstanding which are secured by government bonds to the extent of 19,750,000 pounds, while all notes in excess of this amount are secured by gold. Since the total notes issued by the Issue Department of the Bank of England at the close of the year 1927 amounted to something over 171,000,000 pounds,[2] it is clear that the bulk of the notes of this bank are secured by standard money. The Federal reserve banks in the United States, while not required to use gold as security for note issues, may do so if they see fit and, in fact, $1,513,330,000 in gold was held

[2] *Federal Reserve Bulletin,* February, 1928, p. 141.

against $2,044,606,000 of Federal reserve notes issued on January 25, 1928.[3] A third type of bank note security which has found favor in various countries is *commercial paper*. Commercial paper represents the obligations of business men to the bank possessing it. It therefore constitutes part of the issuing bank's assets and can be easily set aside as security for bank note issues if the law so permits or specifies. The ability to use commercial paper as security for note issues is advantageous to the bank, since such paper is an asset which arises out of the bank's normal business operations and is hence readily available. It is also good security, as a rule, for this purpose. In a soundly managed bank, credit will be extended only to such business men as will, in all probability, have the funds to pay off their loans when they come due. And if the business man has the funds available, it is not too much to say that he is certain to pay off his loan to the bank when it matures (providing the bank so wishes), for any other course would ruin his credit standing in the community and his ability to do business there. Commercial paper as security also has an advantage in connection with the elasticity of bank note issues —but that will receive attention in the following section.

Other securities than government bonds, standard money, and commercial paper might be, and at times have been, permitted as security for bank notes. In fact, almost anything that is fairly readily marketable could be used for this purpose, although some investments are naturally better than others. A sharp distinction must be made in this connection between the security which is retained behind bank notes and the reserve which is required for redemption purposes. Of course, where the security required by law is itself gold, as is the case with the major portion of Bank of England notes, there is no necessity for an additional reserve for redemption purposes. In fact, there is no especial reason for allow-

[3] *Ibid.*, pp. 151 and 154.

ing bank note issues at all, unless it be that they are more convenient for circulation purposes than gold coin. Such notes are, practically, a close approach to gold certificates and act as standard money for domestic purposes if given legal tender powers. But the security required by most banking laws is not standard money, but some sort of right to claim money in the future, or some property right. These things cannot be used to redeem bank notes and hence cannot take the place of a reserve of standard or legal tender government money. The reserve, ordinarily, constitutes but a fraction of the total amount of notes in circulation—that fraction deemed necessary by law or custom to meet all probable demands for redemption and to maintain confidence in the soundness of the notes—and, while it does form an element of security, that is not its primary purpose. The standard money reserve is kept in order to maintain the convertibility of the bank notes, and hence to insure their acceptability and parity. The security, on the other hand, is for the purpose of insuring the ultimate repayment of the noteholder when an issuing bank fails. The reserve insures the proper circulation of the notes; the security insures the noteholder against the final loss of his capital.

Guaranteed issues.—The noteholder receives the maximum of protection when the government *guarantees* the immediate payment in standard money of the notes of failed banks. Even where this plan is in operation, the issuing banks may be required to keep bonds, or other assets, behind their notes as security. It should be noted that, when this is done, the security to the individual noteholder is the guarantee of the government. Such collateral as is retained by the banks behind their note issues is for the protection of the government and not the individual noteholder. The bank notes issued in the United States are all direct obligations of the national government, and hence come under the head of guaranteed issues.

Although the various methods of protecting the noteholder have been presented above as separate and distinct methods, it should be understood that, in practice, a wide variety of combinations of these different procedures is to be encountered. In a particular system, the note issue privilege may be confined to a given bank, or a department of that bank, and, at the same time, specific security may be required to be kept behind the note issues. Or the notes, while secured by specific assets, may also carry a prior lien on all the other assets of the bank as well, in case of failure. Again, note issues may be restricted as to amount and territory of circulation, yet be subject to the added requirement of maintaining specific security behind the notes. In short, a considerable number of combinations is possible, and in no important banking system is the regulation of note issues confined to any one of the methods suggested in the preceding paragraphs.

Elasticity

Why elasticity is important.—The third requisite of a satisfactory system of note issue is elasticity. To be properly elastic note issues must expand and contract in accordance with the needs of business. If gold coin is the standard money of the system, the amount of such money available to a given country at any time is more or less rigidly limited. To increase the stock of standard money it is ordinarily necessary to increase the country's stock of gold, and gold is expensive. If it happens that the country's demand for money has permanently increased, it may be entirely worth while to sacrifice the amount of economic goods and services necessary to obtain an additional stock of gold, but, in most countries, there are periodical or seasonal demands for money which are temporary in nature and do not indicate a permanently increased need for standard money. To

tie up in gold enough of the nation's wealth to satisfy the monetary demands of the peak seasons would be uneconomical, since it would result in a superfluity of unproductive wealth in the form of gold during the seasons or periods of slack business. It is the function of a proper system of bank note issue to care for the periods in which additional hand-to-hand money is needed in circulation without the expense and trouble requisite to obtaining an additional supply of gold for the purpose, and without too great a disruption of conditions in the money and commodity markets. The ability to circulate bank notes on the basis of a comparatively small reserve of standard money makes this procedure possible under certain circumstances.

Expansibility.—Elasticity, as already observed, is composed of two elements—expansibility and contractibility. Regarding the former, it may be stated that the cause for the expansion of bank note issues is, initially, an increasing demand for hand-to-hand money on the part of the banks' customers. Under an unregulated or free credit issue system, the banks would simply continue to issue and pay out their notes as long as the demand for them continued to evidence itself, or, if the increased demand were very great, note issues would be expanded to the limit set by the standard money reserves which the banks were required or accustomed to maintain. Regulations designed primarily to insure security, however, may interfere with the ability of the banks to meet all of the legitimate demands of their customers for additional notes. If, for example, issuing banks are required to keep 100 per cent or more in a specific type of government bond behind their note issues, the value of notes which may be issued is obviously limited by the amount of such bonds which is available as collateral. If the amount of the available bonds is small, a satisfactory degree of expansibility is impossible. Again, the total amount of notes which can be issued and put into circulation may be directly lim-

ited by law primarily with a view to the protection of the noteholder, yet such a limitation will also interfere with proper expansibility if placed at too low a figure. Finally, a note issue system such as that of England, where 100 per cent in standard money must be placed behind new or additional note issues, absolutely precludes the possibility of any expansion apart from that which could be obtained by an increase in the stock of standard money itself.

We have seen that the expansion of bank note issues will naturally result from the increased demands of the banks' customers unless unnecessarily high reserve requirements or legal regulations, designed primarily to promote greater security, interfere with this procedure. Granting reasonable reserve requirements, the only problem which presents itself in connection with the expansion of bank notes is that of attaining a desirable and effective security which will not unduly hinder a proper increase in note issues. Once the proper security has been decided upon, the expansion of note issues will take care of itself. One advantage of commercial paper as security for bank notes now becomes clear. This advantage results from the fact that commercial paper, while serving satisfactorily as security, also permits adequate expansibility. This is bound to result from the circumstances under which commercial paper comes into existence. As the seasonal activity in any line of business increases, business men in this line find it necessary to procure more funds and so borrow more from the banks, giving promissory notes or acceptances as evidence of their indebtedness. With the increase in business, they need a larger amount of hand-to-hand money, and the banks meet this need by paying out to the borrowers in bank notes such of the proceeds of their loans as they desire in this form. The notes and acceptances of the borrowers constitute the necessary collateral security for the bank notes which are paid out, so that the very forces which bring about the in-

creased need for notes provide a supply of the required security.

Contractibility.—But proper expansibility is only half the story. In addition, it is essential that note issues shall contract when the need for them has passed, and it is in this connection that a second advantage of commercial paper as security for bank notes appears, for when the need for the notes is over, the liquidation of the commercial paper by the banks' customers will result in the contraction of the outstanding notes. The issues of notes which bring about an expansion are paid out by the banks almost entirely as a result of loans to business men. When the temporary need for these notes has passed, they will tend to accumulate in the tills of merchants and dealers who, not needing them any longer in the conduct of their business, will deposit them in the banks for credit and use the credit obtained to liquidate their loans. Thus the return flow of notes into the banks is practically automatic, and, if there were but one great bank serving the entire country, no legal regulations designed to secure contraction of note issues would be necessary, for all the notes deposited by the business community would necessarily be the notes of that bank and would be retired as they were received. Where there are many banks in the community, however, the notes of one institution may easily be deposited in another, and, in such cases, some regulatory devices are desirable to prevent any given bank from holding the notes of another or forcing them out into circulation instead of sending them home for redemption. The devices which have been employed for this purpose in various countries are simple. First, no bank is allowed to count the notes of another bank as part of its legal reserve against deposits, and, second, no bank is allowed to pay out over its counter to customers the notes of any other issuing bank. Under these regulations, a bank receiving the notes of another bank on

deposit, or in payment of loans, would unquestionably send them home for redemption since the notes could neither be counted as reserve nor paid out to customers at a later date. Under such circumstances, convenient redemption agencies should be established, so that sending the notes home for redemption is made as easy and inexpensive as possible.

In the case of the notes of a central bank, there must be some incentive to the individual banks to send the notes back to the central bank if the note issues of the latter institution are to contract properly. If the individual banks are in the habit of borrowing from the central bank, they will usually obtain that bank's notes in the first instance as proceeds from loans which they have obtained from the central institution. If so, the interest or discount which has to be paid to the central bank on such loans will be an expense to the individual banks which they would like to be rid of and will cause them to send any surplus notes which may have come into their possession in to the central institution for the purpose of reducing their indebtedness there and thereby decreasing their expenses in the way of interest charges. If, at the same time, the individual banks are not allowed to count central bank notes as part of their required reserves, and if the central institution pays the cost of sending the notes in for redemption, the individual banks will have a still stronger motive for redeeming such excess notes as they may accumulate, for if they used the notes to make payments to anyone else besides the central bank, they would have to stand the expense of transporting the notes, and they would not care to keep the notes in their own vaults if not allowed to count them as part of their legal reserves.

Emergency elasticity.—Before bringing this discussion to a close, perhaps a word should be included with respect to emergency elasticity. If commercial paper is permitted as security for note issues, no special regulations permitting an

expansion of notes sufficient to meet the emergency are necessary so far as the nature of the security is concerned. If, however, a fairly high reserve is required by law to be kept against ordinary note issues, it may be desirable to provide for a relaxation of the legal reserve requirements for emergency purposes, with provision for the payment of a fine by any issuing bank whose reserve falls below the required minimum. When gold coin, or limited issues of government bonds, constitute the normally required bank note security, any effective degree of emergency expansion will necessitate the relaxation of the security requirements of the ordinary law, and a fine or tax may then be imposed on all notes secured by other than the regularly specified collateral.

The fine or tax mentioned in both of these cases is levied as an incentive to the issuing banks to make them retire their emergency issues rapidly as soon as the crisis is over. At a time of crisis, the banks of the system are more concerned with their own solvency than with the making of profits and are willing to pay a fairly heavy tax on excess note issues in order to prevent undesirable consequences both to themselves and their customers. Such times, however, are abnormal. In ordinary times the banks will not issue excessive amounts of notes because of the tax. If a serious situation arises, they may resort to the issuance of emergency notes to tide over the difficulty, but the tax will make it to their own interests to contract these issues as rapidly as practicable.

Conclusion.—In closing this discussion of systems of note issue, it should be noted that the three requisites of a desirable system of issue—parity, security, and elasticity—are more or less interdependent. It is therefore not possible to formulate regulations concerning any one requisite without taking into account the other two. It follows that the most satisfactory system of note issue is that one which so com-

bines regulations pertaining to these three requirements as to bring about the most satisfactory results possible with respect to all three.

QUESTIONS FOR STUDY

1. Why is it desirable that bank notes be kept at par with standard money?
2. What are the methods by which parity of notes with standard money may be maintained? Which seems to you to be the most desirable and why?
3. Distinguish between free credit issues, regulated issues, secured issues, and guaranteed issues.
4. Why have governments almost universally given the bank note holder some protection which the ordinary creditor does not enjoy?
5. What are the different methods of regulating note issues?
6. Give examples of the security which is required against note issues in various countries.
7. Explain what is meant by elasticity of bank note issues.
8. Why is elasticity important?
9. In what way is expansibility dependent upon the type of security required? Upon reserve requirements?
10. What devices may be employed to secure the contraction of bank note issues when the need for notes slackens? Why are these devices likely to prove effective?
11. When notes are issued by a central bank, what incentive is there, as a rule, to send the notes back to the central bank for redemption?
12. How may note issues be regulated to provide for emergency elasticity? Show how the regulations employed operate to secure the desired result.

BIBLIOGRAPHICAL NOTE

The present chapter is based largely on F. M. Taylor, *Some Chapters on Money,* Chapter VIII. C. A. Conant, *A History of Modern Banks of Issue* (New York, Sixth Edition, 1927), contains a wealth of illustrative material relative to various actual systems of note issue. The systems of note issue in various foreign countries are described in nearly all of the standard texts in money and banking. Among the best of these descriptions are the following: C. A. Dunbar, *The Theory and History of Banking* (New York, Fourth Edition, 1922), Chapters VIII, IX, and X; C. A. Phillips, *Readings*

in Money and Banking (New York, 1918), Chapters XXI to XXVI inclusive; H. White, *Money and Banking,* Chapter XVI; and I. Wright, *Readings in Money, Credit and Banking Principles* (New York, 1926), Part V. The first three of these references are now somewhat out of date, but furnish excellent descriptions of the situation in the different important countries before the War. Professor Wright's *Readings* include more recent material. Detailed studies of the pre-war currency arrangements of nearly all of the important foreign countries are contained in various volumes of *The Report of the National Monetary Commission* (Government Printing Office, Washington, 1910).

A description and analysis of more recent arrangements in foreign countries is to be found in H. P. Willis and B. H. Beckhart, *Foreign Banking Systems* (New York, 1929), which contains an excellent series of monographs by various authors.

CHAPTER IV

THE CHECK CURRENCY

The use of checks as means of payment.—In introducing the subject of bank notes in the preceding chapter, the fact was mentioned that, in England, Canada, and the United States, checks form an even more important means of payment than bank notes. Further, although little use has been made of checks in the past in the continental countries of Europe, there seems to be a tendency to encourage the use of checks by the people of those nations at the present time. It therefore seems clear that a discussion of the use of checks, and the manner in which they serve as money, is not inconsistent with a description of the banking aspects of the typical monetary system. The present chapter will, accordingly, be devoted to a treatment of this subject.

Credit money and the check currency.—In the definition of money in the introductory chapter, it was stated that money is anything which is devoted to use primarily as a medium of exchange. Further, a medium of exchange was defined as a go-between which, having been accepted in exchange for goods or services, is, after a longer or shorter period of time, given in exchange for other goods or services. Later on (p. 46), credit money was defined as "any sort of an instrument which is widely used as a means of payment and which, when so used, permits an economy in the need for full-bodied money or bullion." This may seem to be a modification of our original definition of money, for an in-

strument may act as a means of payment without serving as a medium of exchange. But are these two definitions of money fundamentally inconsistent, or is the inconsistency only seeming?

As far as the two chief types of credit money we have considered thus far (government and bank notes) are concerned, there is little cause for doubt, as both types not only act as means of payment, but as media of exchange also. With checks, however, the situation is somewhat different. Checks are individual credit instruments. Various individuals in the business world have temporary surplus funds which they deposit with the commercial banks, partially for purposes of safe-keeping, but in larger measure for convenience in making payments, since they may draw orders on the bank requiring it to pay to a party designated on the order a definite amount of lawful money on demand. This is possible because the deposit itself is simply a right to receive lawful money on demand from the bank, so that the depositor has the right to order the bank to pay any portion or all of that deposit to a designated party (or his order) without previous notice. These orders are the checks which constitute what we have designated the check currency. Such checks, though serving as a means of payment, do not, as a rule, act as media of exchange for a number of reasons. (1) A bank is obligated to pay a check only if the person who wrote it (the drawer) has a sufficient deposit with the bank to cover the amount of the check. The goodness of the check, therefore, depends upon the ability of the individual drawer to write it as well as upon the ability and the willingness of the bank to pay legitimate claims to lawful money. Smith may be willing to accept a check from Brown, whom he knows, but Jones, who does not know Brown, will probably hesitate to accept the latter's check if it is offered to him by Smith. (2) Checks are usually drawn for the amount of a specific payment, so that they are likely to be inconvenient

for use in making further payments. (3) Lastly, checks are made payable to the order of a specific party as a rule, so that they cannot be transferred to some other party without endorsement, which creates a liability against the endorser.

Because of the characteristics mentioned, the great majority of checks change hands only once, and so they cannot be said to act as media of exchange in any general sense. Checks, however, are merely evidences of rights to claim lawful money on demand. If it can be shown that these rights which the checks represent do pass from one person to another in exchange for goods and services and, in so doing, act as a substitute for lawful money, there is no reason for feeling that the definition of credit money just referred to is inconsistent, in a fundamental sense, with the general definition of money which was given in the first chapter. It is of small moment whether a given check acts as a medium of exchange or not, provided the right which it evidences serves in that capacity. But do these rights serve in this capacity in accordance with our definition of a medium of exchange?

Checks in an isolated community with one bank.—In attempting to answer this question, let us assume the simplest possible conditions at first, namely, an isolated community having no trade relations with outsiders and having but one large bank with branches which carries on all the commercial banking business of the community. The business men of the community will then all maintain their temporary surpluses in the form of deposits with this one bank. One man in the community, whom we shall call *A*, owes certain sums to *B*, *C*, and *D*, so he draws orders against his account in the bank authorizing that institution to pay to *B*, *C*, and *D* the amounts designated on the respective orders or checks, and *A* then sends these checks to the men in question in payment of his debts. Will *B*, *C*, and *D* take these checks to the bank and demand lawful money? In all probability, they will not.

Instead, they will simply deposit the checks at the bank for credit to their respective accounts. The bank, in the latter case, will then decrease (or debit) the account of *A* by the aggregate amount of the three checks, and increase (or credit) the accounts of *B, C,* and *D,* respectively, by the proper amounts. The latter men now find their rights to claim lawful money (their deposit accounts) increased by the amount of the deposited checks. Prior to this time, let us suppose, their accounts had been uncomfortably small, but now that they have been augmented by the amount of *A*'s checks, the three business men in question are able to draw their own orders against their revivified accounts at the bank and use the checks so drawn in the payment of their own debts. The recipients of these checks will, in turn, deposit them at the bank and receive credits to their accounts, while the accounts of *B, C,* and *D* will again be drawn down by the amount of the checks they have written and sent to their creditors to make payments that were due.

In the transactions just indicated, *B, C,* and *D* received from *A* in payment for goods or services, not lawful money, but rights to claim such money from the bank. They used, in turn, not lawful money, but these same rights to make payments for goods or services which they had received. Deposits at the bank were thus used as media of exchange. Such transactions are typical of approximately nine-tenths of the payments which actually occur in this country today under somewhat more complicated conditions than those we have postulated. But, before bringing our hypothetical example a step nearer to actual conditions, we must stop to inquire why any other money than bank checks should be used at all.

In the example chosen, we assumed that *B, C,* and *D* did not present their checks (which they had received from *A*) at the bank to be cashed or exchanged for lawful money, and that assumption is largely in accord with actual conditions,

although perhaps not entirely so. Possibly *B* is the employer of laborers who object to taking checks in payment for their labor services and want hand-to-hand money. Many of the laborers probably do not have deposit accounts at the bank, so that *B* finds it advisable to exchange his check, or a part of it, for hand-to-hand money, and use the latter to pay his laborers' wages. If the bank, in our imaginary example, issues notes, *B*'s demand for hand-to-hand money may be met by giving him bank notes in exchange for his check; otherwise, he will receive lawful money. In the former case, the bank merely substitutes one form of demand obligation for another; but whether *B* receives bank notes or lawful money is of no importance in the present connection. In either case, the fact remains that, to the extent that the bank paid out hand-to-hand money to *B* when he presented *A*'s check, the check (or deposit represented by the check) was not being used as a medium of exchange, for the second part of the exchange transaction (exchanging the deposit for goods) was never completed. As long as some payments continue to be made in other media than checks against deposit accounts, the latter can never entirely usurp the place of other forms of money; and it may be safely asserted that the time will never arrive when, even in entirely domestic transactions, everyone will find it more convenient to use checks than hand-to-hand money for every payment.

Checks in an isolated community with several banks.—We shall now return to our isolated community and study it under slightly more complicated conditions. Assume that an additional bank has been established in the community. Now, when *A* draws checks against his deposit account in favor of *B, C,* and *D,* suppose that *B* and *C* deposit their checks, not in *A*'s bank, but in the other banking house which has been established. The latter bank will then have some claims against the former. *B* and *C,* however, and other depositors of the new bank will, in all probability, have written

checks against their accounts and paid them to depositors of the old bank where they will be deposited, so that this institution will also have received claims against its new competitor. At the end of the day's business, the original bank will have accumulated, say, $47,000 in claims against the second bank, while the second bank has, we shall suppose, a total of $50,000 in claims (checks) against the first institution. Obviously, it would be foolish for each bank to pay to the other the total amount of claims against it in lawful money. Instead, the two banks will cancel their claims against each other so far as possible and pay only the difference in cash. In this case, the original bank would have to pay the newer institution the balance of $3,000 in favor of the latter, but the other $47,000 of conflicting claims would be cancelled. In so far as this cancellation process takes place, deposit credits actually take the place of other forms of money and so act as a medium of exchange.

If more banks are introduced into our hypothetical community, essentially the same process of check cancellation will be resorted to. This is what is known as the *clearing process.* At a designated time, each bank in the community will send its agent to a common meeting place, known as the clearing house, with all the claims that it has against each other bank in the community. At the clearing, each bank sets the sum of the claims that it has against all the other banks of the community over against the sum of the claims which all the other banks have against it, and the difference, if any, is paid or received in cash. That is, when a bank has more claims against it than it has against the other banks, it pays the difference to the manager of the clearing house. The manager then uses the cash so paid to him to meet the claims of those banks which had a favorable balance, i.e., those banks which had more claims against all the others than the others had against them. Since the process is reciprocal, the payments of cash into the clearing

house by the banks with adverse balances are bound to be just sufficient, in the aggregate, to meet the claims of the banks with favorable balances. No cash will remain with the clearing house manager at the end of the clearing process, for all that he has received from some of the banks has been paid out, in turn, to others. In fact, unless this is actually the case, some error has been made in adding and checking the sum of the items due to and due from the different banks that have participated in the clearing.

An example will serve to make the description of the above paragraph somewhat clearer. Assume four banks, *A*, *B*, *C*, and *D*, with checks at the clearing house as follows:

Against	Bank *A*	Bank *B*	Bank *C*	Bank *D*	Total
Bank *A* . . .		$40,000	$ 5,000	$20,000	$65,000
Bank *B* . . .	$30,000		15,000	23,000	68,000
Bank *C* . . .	17,000	10,000		35,000	62,000
Bank *D* . . .	23,000	20,000	37,000		80,000
Total	$70,000	$70,000	$57,000	$78,000	$275,000

Bank *A* is owed	$5,000	
Bank *B* is owed	2,000	
Bank *C* owes		$5,000
Bank *D* owes		2,000
	$7,000	$7,000

From the foregoing tabulation it will be seen that the amounts due to the clearing house by banks *C* and *D* just equal the amounts due from the clearing house to banks *A* and *B*. Further, it shows that, out of a total of checks amounting to $275,000, only $7,000 in cash, or 2.54 per cent, was necessary to settle the balances which did not cancel. The remaining $268,000 in checks acted as a sub-

stitute for lawful money in the payments in which they were used.

Checks in several communities with numerous banks.—Now let us expand the territory in our example to include a number of communities, each with a number of banks. We shall also assume a central or bankers' bank to be in operation in this territory. The relations between individual banks and a central institution are practically identical with the relations established between business men and their banks. Just as business men keep a large share of their ready cash reserves in the form of deposits with their banks, so the latter institutions keep a large portion of their reserves on deposit with the central bank. In our enlarged system, therefore, each individual bank will have a demand deposit with the central bank which constitutes a substantial part of its reserve against its own deposits.

With the larger number of communities now included in our example, considerable numbers of checks received on deposit by the various banks will be drawn on banks located outside the community, and so will not be collectible through the local clearing house in the manner already described. Because of the presence of the central bank, however, the process of collecting such checks is extremely simple. The out-of-town checks are first sent to the central bank. That institution, upon receiving them, debits the reserve deposit accounts of the banks on which they are drawn by the proper amounts and credits the reserve accounts of the banks sending in the checks by similar amounts. The central bank thus acts as a clearing house for all the banks of the territory which it serves, for, at the end of each day, each bank will have had its reserve account credited by the sum of all the checks it had held on other banks in the region, and debited by the sum of all the checks the other banks of the region had held against it, the result being a net debit or credit to its reserve account as the case may be. No cash will have

been paid out, the whole process having been carried through by making the appropriate debits and credits on the books of the central bank. It is also probable that balances at the local clearing houses will no longer be paid in cash, but with checks drawn against the paying banks' accounts in the central institution. Referring to the example given in the previous section (p. 79), banks *C* and *D* will draw checks against their accounts at the central bank to pay their adverse balances. At the central bank, the accounts of *C* and *D* will be debited by the proper amounts ($5,000 and $2,000 respectively), while the accounts of *A* and *B* will be credited. When this situation exists, the whole check-using process is reduced to a simple form for the entire banking system, which is comparable with that existing in our original example of a single community with a single bank. A few more book entries are necessitated, it is true, but the result is the same, and once more, under the complicated conditions of actually existing banking systems, the bulk of the checks cancel each other, rights to claim lawful money rather than lawful money itself act as the chief type of medium of exchange, and only the demands of the community for lawful money as such have to be met out of the banking reserve of the country.[1]

Why stop at checks?—The preceding analysis has shown how checks act as a substitute for other kinds of money. Because the rights to claim lawful money which the checks represent do act as media of exchange, the check currency has been included under the head of credit money. Before

[1] These demands may be for full-bodied money for purposes of export or for use in the arts, legal tender money for tax payments, money for the payment of wages to laborers who are unwilling to accept checks, or hand-to-hand money for use as pocket money. If bank notes are valid tender for tax payments, all but the first of these demands may be met with bank notes rather than lawful money; but, in any case, checks may be said to serve as money until converted into some form of hand-to-hand money rather than being transferred to another deposit account.

leaving the subject, it seems pertinent to inquire whether we should not include under the same head certain other types of credit as well as checks. For example, take the credit extended in the form of the open book account. Such credit is exemplified by the ordinary charge account at a retail store. A customer buys goods from the store, but does not pay cash for them. Instead, he gives the store a right to claim payment from him. Can such a right be used as money? It can not, and for two reasons. In the first place, it is not a right to claim payment on demand, but in 30 days, more or less, depending upon how long a time has elapsed since the goods were purchased and upon the policy of the store in sending out bills. Consequently, a right of this sort would only be accepted at a discount if for no other reason than the fact that it was not payable on demand, and on this score alone it would fail to be satisfactory as a medium of exchange. But, in the second place, even if rights or claims of the type referred to were payable on demand, and even if the merchant should draw drafts against his customers ordering them to pay the amounts which they owed to some third party, these drafts would not be acceptable means of payment, for people generally would have very little confidence in the willingness or ability of the store's customers to pay the claims upon presentation, and so would be willing to accept them, if at all, only at a substantial discount to cover the risk involved. Further, because of the lack of confidence, any claims so accepted would be presented at once for payment in some other type of money and so would not act as a substitute for other kinds of money or serve as a medium of exchange. As a matter of fact, of course, merchants do not draw drafts against their customers and so have no tangible rights which could be passed on to others in exchange for the goods which the merchants wish to obtain. When a customer obtains credit of the sort in question, he merely obtains the privilege of

deferring his payment for the goods purchased. Later he must make the payment in some acceptable medium. Such credits obviously do not result in an economy of standard or other forms of money, but merely postpone its use, and they can not, therefore, be classed under the head of credit money.

While it is clear that book credits can not be considered as money, what can be said concerning certain demand drafts such as those used in connection with some commercial shipments of goods? When cotton is shipped from the south to New York, for example, the shipper draws a draft against the New York buyer (or the buyer's bank) ordering him to pay a certain amount on demand upon receipt of the cotton. Are such demand drafts a form of credit money? The answer is no, and for the reason that the payment of such an order upon demand depends upon the fulfillment of a specified condition—the receipt of the cotton. To act as money a credit claim must be both immediately and unconditionally convertible. There must be no strings tied to the ability of the holder to turn his claim into lawful money, for people generally will not be willing to accept, in payment for goods or services, claims to lawful money which are payable only when a given condition has been fulfilled, and such claims or rights will not, therefore, possess any general acceptability.[2]

With regard to bonds and other credit instruments with definite future maturity dates, there can be no question. Such instruments represent rights to claim lawful money in the future and they usually bear interest at a fixed rate. Their value accordingly varies with variations in the market rate of interest, with the nearness to maturity, and with the

[2] An exception must be made in the case of government paper notes which are full legal tender, for such notes will possess a rather wide acceptability for a time even when not redeemable in gold on demand. The reason for this will be made clear in a later chapter on the circulation of money (Chapter V).

approach to, and passage of, the date upon which interest is paid. Because of these characteristics, instruments of this sort are usually held by investors as a source of income and are not normally used either as a means of payment or as a medium of exchange.[3]

Checks occupy a peculiar position in the monetary system. —The analyses of the various types of credit money which have been presented in this and the two preceding chapters have indicated that two elements are essential to the use of a credit instrument as money. One is *redeemability on demand* [4] and the other is *confidence* in the ability and willingness of the debtor to pay his obligation. It is with respect to the second of these that checks occupy a peculiar position among credit moneys. Since the check is an individual credit instrument, there is not likely to be any wide confidence in the ability or willingness of the individual drawer to pay the amount specified on the check. That there is such a lack of general confidence in the drawer is shown by the fact that the check of an individual, even when made payable to bearer, will not pass readily from hand to hand, but will probably be deposited immediately by the person to whom it was given originally in order that it may be collected and the proceeds credited to his account before the account of the drawer of the check has become exhausted through the payment of other checks which the latter has written. The bank also, as already noted, immediately presents for payment any checks which it may have on other banks. Now, if the recipient of a check insisted on its payment in lawful money instead of depositing it at the bank, and if each bank in-

[3] Following the Great War, in 1919 and 1920, many business firms accepted liberty bonds at currently quoted prices in payment for goods. The bonds thus served as a means of payment, but not as a medium of exchange, for the business firms which had accepted them did not use them to purchase other goods, but sold them to investors who held them for their income yielding property. In normal times, the use of bonds even as a means of payment is not usual.

[4] With the exception already remarked in note 2.

sisted on the payment in lawful money of all the checks it held against every other bank instead of cancelling conflicting claims through the clearing house, there would clearly be no substitution of checks for lawful money (or bank notes), but merely a temporary deferment of payment in the latter medium. But, since most recipients of checks do deposit them, and since all banks cancel conflicting claims wherever possible through the clearing process, the use of checks does result in an economy of lawful money, the deposits which the checks represent acting as a substitute for the latter money to a very large extent. In short, the banking system pools the debits and credits of the community, offsets the one against the other, and makes necessary the use of lawful money for the settling of balances only. It is this pooling of debits and credits by the banking system which makes possible the use of checks as money in spite of the lack of general confidence in the individuals who draw the checks.

Conclusion.—In this chapter and the two which have preceded it an attempt has been made to describe the elements which are typical of modern monetary systems, and to determine the function of each element in the system together with the manner in which the proper functioning of each of the different elements may be obtained. The discussion, therefore, has been necessarily abstract in large part, and it is intended to give it concreteness by tracing in some detail the development and present operation of the monetary system of the United States. A clearer understanding of the latter will be obtained, however, if it is prefaced by an analysis of some of the more important principles which govern the circulation of various types of money within a given country. For this reason, the next chapter will be devoted to a consideration of the circulation of money, which will then be followed by a treatment of the development and operation of this country's monetary system.

QUESTIONS FOR STUDY

1. Why should there be any doubt about the propriety of including checks under the head of money?
2. Show that it is not unreasonable to class checks as money in view of the definition of money given in the first chapter.
3. Describe the manner in which checks may be substituted for other forms of money in an isolated community with but one bank.
4. How would the situation differ if there were more than one bank?
5. What is the significance of the clearing process from the point of view of the use of checks as money?
6. In what way may the clearing process be extended to serve all the banks of a number of different communities?
7. Why are charge accounts (book accounts) excluded from the category of money while checks are included? Answer the same question for demand drafts against commercial shipments of goods; for credit instruments with definite maturity dates.
8. Explain the pecularity of the position which checks occupy in the monetary system.

BIBLIOGRAPHICAL NOTE

References on the clearing function and the work of the clearing house will be found in the note at the end of Chapter VII. But one citation need be given here. F. M. Taylor, *Principles of Economics* (New York, 1925), Chapter XIII, contains an admirable discussion of credit exchange which shows the manner in which the banking system, through its pooling of debits and credits, makes possible the use of bank deposits as a medium of exchange.

CHAPTER V

THE CIRCULATION OF MONEY

What is meant by the circulation of money.—Money is said to circulate when it passes from hand to hand in exchange for goods or services. To say that money is circulating is, therefore, merely another way of saying that it is performing its medium of exchange function. Since this is the case, the introduction of a separate chapter on the circulation of money at this point may appear unnecessary, for the qualities essential to a good medium of exchange have already received attention (pp. 3–5) and it would seem that any money which possessed these qualities would circulate readily. If there were only one kind of money (e.g., gold coin) in use in the typical monetary system, it is true that any further discussion of the circulation of money would be redundant since that one kind of money would circulate readily if it possessed the necessary characteristics of a satisfactory medium of exchange. Actually, however, as we have seen, the typical system includes a number of different kinds of money, and it is with the principles relating to the *concurrent* circulation of these several types of money that the present chapter is particularly concerned.

Gresham's law.—The principle which applies most widely to the circulation of money is known as Gresham's law and is formulated, in its simplest terms, in the statement, "Bad money drives out good." The name Gresham's law has resulted from the association of the principle with the state-

ments of Sir Thomas Gresham, Master of the Mint under Queen Elizabeth, who pointed out that the debasement of the coinage by the sovereign, while it would leave in existence two kinds of coins of the same nominal value but of unequal weight, would not result in the concurrent circulation of both kinds of coins, for the heavier coins would be shipped abroad (where they would be accepted only by weight) while the lighter ones alone would remain in domestic circulation.[1] It must not be thought, however, that Gresham was the first to observe the working of this monetary principle simply because his name has been associated with the law by later writers. Nicole Orêsme gave a precise and accurate statement of the principle in his treatise on money in 1364,[2] and a recognition of the action of such a law is to be found in Aristophanes' *Frogs,* in the latter part of the fifth century B.C.[3]

Simplest statement of Gresham's law misleading.—The simple statement that "bad money drives out good," which has been termed Gresham's law, is both inaccurate and misleading as it stands and needs considerable remodeling. In the first place, in most of the cases to which Gresham's law is applied, bad money does not mean money which is counterfeit or undesirable *per se,* but rather money which has an exchange value in some connections which is less than that of the money which is driven out of circulation. Secondly, if

[1] "It may please your Majesty to understand, that the first occasion of the fall of the exchange did grow by the King's Majesty, your late father, in abasing his coin from vi ounces fine to iii ounces fine. Whereupon the exchange fell from xxvi*s.* viii*d.* to xiii*s.* iv*d.* which was the occasion that all your fine gold was conveyed out of this your realm." Sir Thomas Gresham on the Fall of the Exchanges; Bland, Brown, and Tawney, *English Economic History: Select Documents,* p. 416.

[2] "That if the fixed legal ratio of the coins differs from the market value of the metals, the coin which is underrated entirely disappears from circulation, and the coin which is overrated alone remains current." *Tractatus de origine, natura, jure, et mutationibus monetarum* (Paris). See Wolowski's edition (Paris, 1864). Quoted from Laughlin, *The Principles of Money,* p. 420.

[3] *Ibid.,* Laughlin, p. 420.

the principle is to work out fully in practice, both the so-called bad and good moneys must be legal tender. Thirdly, the good (i.e., the more valuable) money is not really driven out of circulation, but is rather enticed out by the possibilities of profit in putting it to other than domestic monetary use. Lastly, if the less valuable money is not present in sufficient quantity, it will not cause the more valuable money to disappear from circulation entirely, but will simply displace a part of it, the more valuable money continuing in circulation to some extent, although only at a premium.

Having now noted the more important defects of the simplest statement of Gresham's law, we may formulate the principle in a manner which is less open to objection:

If two moneys of the same nominal value are legal tender in the payment of debts and a discrepancy occurs between their exchange values in any connection, the money with the higher exchange value will commonly disappear from circulation or will circulate, if at all, only at a premium.

The reasoning in support of this principle is simple. Since both moneys are legal tender, one is as good as the other in the payment of money obligations. It follows that if one of the moneys comes to have a higher exchange value in some other connection than it has as domestic money, it will be profitable to use this money in the connection in which it will bring the greatest return. Hence it will tend to disappear from circulation, since the cheaper money, being legal tender, is equally qualified to make all domestic payments. If, however, the less valuable money is not available in sufficient quantities to perform the money work of the country, the money which has the greater exchange value in some other connection may continue to appear in circulation as money, but it will only circulate at a premium which is sufficiently high to keep it from being put to other uses.

Gresham's law and the bimetallic standard.—The working of Gresham's law finds profuse illustration in the experience

of this and other countries with a bimetallic standard. From the description of the nature of bimetallism in an earlier connection,[4] it will be recalled that under the bimetallic standard the government freely coins both gold and silver at a specified ratio (the mint ratio), and that both gold and silver coins are made full legal tender. It was also stated that, if the mint ratio diverges from the ratio between the values of the two metals in the market, one or the other of the metals will be of more value as bullion than as money and will disappear from circulation. To illustrate, suppose that the mint puts 15 times as much by weight of silver into a silver dollar as it puts gold into a gold dollar, so that the mint ratio of gold to silver is 1:15, but that on the market for bullion one ounce of gold will exchange for 16 ounces of silver, so that the market ratio between the two metals is 1:16. Under such conditions, the mint over-rates silver in relation to gold (i.e., treats silver as worth more than it really is on the market) and it becomes profitable to use the gold for other than domestic monetary purposes, with the result that the latter metal tends to disappear from circulation. The conditions depicted above were those which actually existed in the United States following the year 1810, and the precise method by which gold was withdrawn from circulation at that time has been so clearly depicted by Professor Laughlin that we shall quote the following paragraph from his writings: [5]

"The operation of Gresham's law is in reality a very simple matter. If farmers found that in the same village eggs were purchased at a higher price in one of two shops than in the other, it would not be long before they all carried their baskets to the first shop. Likewise, in regard to gold or silver, the possessor of either metal has two places where he can dispose of it—the United States Mint, and the bullion market; he can either have it coined and receive in new coins the legal equivalent for it, or sell it as a commodity at a given price per ounce. If he finds that silver in the form of

[4] Chapter II, p. 33.

[5] *The History of Bimetallism in the United States*, pp. 26–28.

United States coins buys more gold than he could purchase with the same amount of silver in the bullion market, he sends his silver to the Mint rather than to the bullion market." Laughlin then states that, by 1810, "the market value of silver relatively to gold had fallen to 1:16, while at the Mint the ratio was 1:15. That is, in the market it required sixteen ounces of silver to buy one ounce of gold bullion; but at the Mint the Government received fifteen ounces of silver and coined it into silver coins which were legally equivalent to one ounce of gold. The possessor of silver thus found an inducement of one ounce of silver to sell his silver to the Mint for coins, rather than in the market for bullion. But as yet the possessor of silver had only got silver coins from the Mint. How was he to realize his gain? Will people give the more valuable gold for his less valuable silver coins? To some minds there is a difficulty in understanding how a cheaper dollar is actually exchanged for a dearer dollar. This also is simple. The mass of people do not follow the market values of gold and silver bullion, nor calculate arithmetically when a profit can be made by buying up this or that coin. The general public know little about such things, and if they did, a little arithmetic would deter them. These matters are relegated by common consent to the money-brokers, a class of men who, above all others, know the value of a small fraction and the gain to be derived from it. Ordinary persons hand out gold or silver, when they are in concurrent circulation, under the supposition that the intrinsic value of gold is just equal to the intrinsic value of silver in the coins, according to the legal ratio expressed in the coins. If, under such conditions, silver falls as above described, the money-broker will continue to present silver bullion at the Mint, and the silver coins he receives he can exchange for gold coins as long as gold coins remain in common circulation —that is, as long as gold coins are not withdrawn by every one from circulation. Having now received an ounce of gold in coin for his fifteen ounces of silver coin, he can at once sell the gold as bullion (most probably melting it, or selling it to exporters) for sixteen ounces of silver bullion. He retains one ounce of silver as profit, and with the remaining fifteen ounces of silver goes to the Mint for more silver coins, exchanges these for more gold coins, sells the gold as bullion again for silver, and continues this round until gold coins have disappeared from circulation. When every one begins to find out that a gold eagle will buy more of silver bullion than it will of silver dollars in current exchanges, then the gold eagle will be converted into bullion and cease to pass from hand to hand as coin. The existence of a profit in selling gold coins as bullion, and presenting silver to be coined at the Mint, is due to the divergence of the market from the legal ratio, and no power of the Government can prevent one metal from going out

of circulation. Like the farmers with their eggs, under the operation of Gresham's law silver will be taken where it is of the most value (the United States Mint), and gold will be sold where it brings a greater value than as coin (the bullion market)."

Illustrations of the operation of Gresham's law.—That the monetary experience of the United States furnishes one example of the operation of Gresham's law under a system of bimetallism is evident from the foregoing quotation. Since we shall trace the monetary development of this country in the following chapter, however, the particular case of the United States is merely mentioned in the present connection. Among other nations, the experience of France under the bimetallic standard is a case in point. France adopted the bimetallic system in 1803, with a mint ratio of 1:15½. At the time of the adoption of this system, the ratio mentioned seems to have come close to coinciding with that which obtained in the market. Very shortly, however, the value of silver began to fall relatively to gold, with the result that the mint ratio, before very long, over-rated silver, and gold largely disappeared from circulation. The situation again changed about the middle of the century. The tremendous increase in gold production which took place at that time lowered the value of gold relatively to silver and, the mint ratio of 1 : 15½ being retained, gold came to be over-rated at the mint and silver coin (including subsidiary silver) began to disappear from active circulation.

In 1865, France joined with Belgium, Switzerland, and Italy to form the Latin Monetary Union, under the terms of which uniform coinage laws were adopted by the contracting nations. The fineness of subsidiary silver coins was reduced from .900 to .835, in order to prevent their disappearance from circulation, but free and unlimited coinage of both gold and silver in the larger denominations at a ratio of 1:15½ was adopted by the members of the Union. This ratio at first over-rated gold, so that the practical result of

the system was a single gold circulation, although legally the free coinage of both metals was permitted. Shortly after 1870, however, the situation changed for a third time. Silver fell in value relatively to gold and the mint ratio of 1:15½ came to over-rate silver. The action of Gresham's law would shortly have resulted in the disappearance of gold from circulation, had not the members of the Latin Monetary Union prevented this from occurring by first limiting, and finally (in 1878) discontinuing entirely, the coinage of silver in the larger denominations.

"The most extreme instance [of the action of Gresham's law under bimetallism] which has ever occurred," according to Mr. Jevons,[6] "was in the case of the Japanese currency. At the time of the treaty of 1858, between Great Britain, the United States, and Japan, which partially opened up the last country to European traders, a very curious system of currency existed in Japan. The most valuable Japanese coin was the kobang, consisting of a thin oval disc of gold about 2 inches long, and 1¼ inches wide, weighing 200 grains, and ornamented in a very primitive manner. It was passing current in the towns of Japan for four silver itzebus, but was worth in English money about 18*s.* 5*d.*, whereas the silver itzebu was equal only to about 1*s.* 4*d.* Thus the Japanese were estimating their gold money at only about one-third of its value, as estimated according to the relative values of the metals in other parts of the world. The earliest European traders enjoyed a rare opportunity for making profit. By buying up the kobangs at the native rating they trebled their money, until the natives, perceiving what was being done, withdrew from circulation the remainder of the gold."

Gresham's law applied to coins of one metal.—The illustrations adduced thus far have evidenced the opera-

[6] *Money and the Mechanism of Exchange*, p. 84. Also quoted in Laughlin, *The Principles of Money*, p. 423.

tion of Gresham's law with reference to coins of two different metals, but the principle has also been observed to work at times among coins of a single metal. Indeed, Sir Thomas Gresham himself, in his observations on this score to Queen Elizabeth, had reference to the discrepancy in the export value of two kinds of coins both of which were made of the same metal and had the same nominal value, which discrepancy had occurred as a result of the debasement of the coinage by Elizabeth's father, Henry VIII.[7] Debasement, as Gresham's remarks indicate, occurs when the fine metal content of a certain type of coins is reduced without a corresponding reduction in their nominal value. Obviously, the debased coins, being legal tender, will be used in domestic payments, while the old coins which contain a larger proportion of fine metal will be exported or melted for use in the arts.

A slightly different example of the operation of this principle is offered by the monetary history of England in the reign of William III. Many of the coins at this time were hand cut and hammered, so that clipping them was a comparatively simple matter. Some machine-made coins were being introduced into the circulation, but they rapidly disappeared from use, only the clipped and defaced coins continuing to be offered in payment of taxes, for which they were legal tender. This was the case in spite of the most drastic penalties against clipping and otherwise mutilating the coins. Finally, Parliament fixed May 4, 1696, as the day on which clipped and short weight coins should cease to be receivable for tax payments except at their bullion weight, and the difficulties connected with the mutilation of the coinage shortly disappeared.[8] As long as the short weight coins were legal tender in the payment of taxes, it was

[7] See footnote 1 of this chapter.

[8] See almost any economic history of England. Laughlin quotes at length from Macaulay in his *Principles of Money*, pp. 423–425.

naturally profitable to clip the coins, or to use the short weight coins, at any rate, for this purpose, while the heavier and better coins were put to other than domestic monetary uses.

The relation of legal tender to the operation of Gresham's law.—We have stated that, if Gresham's law is to work out fully in practice, it is necessary that both the cheaper and more valuable money shall be legal tender in the payment of debts. This is so because money which has legal tender power can be used in the payment of all general money contracts, so that no one will knowingly elect to pay such a contract in coins of a certain value if other coins of less value have the same legal sanction in the discharge of money obligations. Accordingly, when a discrepancy arises between the exchange values of two different kinds of money, both of which are legal tender, the cheaper of the two will be used almost invariably in making money payments while the other will disappear from circulation.

But even when legal tender power is absent in the cheaper money, there is a tendency for it to show a greater tenacity in actual hand-to-hand circulation than will more valuable legal tender money of the same denomination. To illustrate, if, in a country which has an extensive gold circulation, coin will be accepted by the banks and the government by weight only, the heavy or full-weight coins will be sorted out for use in payments to these institutions, while coins which are short in weight from abrasion in ordinary use will continue to pass from hand to hand and form the bulk of the currency in circulation. Individuals are lax about demanding payment in coin by weight, and experience has demonstrated that worn coins will pass readily from one person to another long after they would cease to be taken by a bank except at a discount. Under such circumstances, a progressive deterioration of the coinage will take place unless the government accepts worn coins at their face value in payment of taxes,

and replaces them with new ones at its own expense by recoinage. In order to prevent such a deterioration of the coinage, while yet avoiding the difficulties experienced by England in the reign of William III, it is customary for governments to set a limit of tolerance on its coins. Any coins not falling below the limit of tolerance will be accepted at their face value by the government, while coins falling below this limit are acceptable by weight only. Mutilated or clipped coins, of course, are accepted only by weight, the limit of tolerance applying only to coins which are slightly short in weight from ordinary abrasion. By this device, the government prevents individuals from discriminating against slightly worn coins in making payments to the government, and the coinage may be maintained in first-class condition by providing for the recoinage of slightly worn coins at the expense of the government.

A somewhat similar situation may exist in the case of bank notes which do not have legal tender powers. Even though the notes of a large number of issuing banks may be redeemable in lawful or standard money on demand at the issuing bank, it will be observed that, in any given locality, the notes of the more distant banks will show a greater tenacity in circulation than those of the banks which are close at hand. The explanation of this phenomenon is to be found in the fact that the local banks will redeem the notes of the more distant out-of-town banks only at a discount sufficient to cover the cost of sending these notes home for redemption. The notes of the distant banks can, however, be passed from hand to hand quite readily at par, or at a discount which is less than that exacted by the banks, because of the inertia and lack of interest or knowledge on the part of individuals who receive the notes in ordinary trade transactions. The notes of the distant banks, therefore, tend to stay in circulation, while the notes of the local banks, which can be easily redeemed at the issuing bank at par, will be

sorted out and presented for redemption when lawful money for tax payments or for other purposes is desired. The remedy for this difficulty is to be found in the adoption of a scheme for the local redemption of out-of-town bank notes at par, this being the plan so successfully followed by the Suffolk Bank in Boston, as outlined in an earlier chapter.[9]

The circulation of credit money.—Generally speaking, in countries which make use of credit money at all, the various types of credit money show a greater tenacity in circulation than does full-bodied money. We have already noted (p. 84) that the satisfactory use of any type of credit money requires a high degree of confidence in the ability and willingness of the issuing agency to meet its obligations on demand. Although this element of confidence does explain why credit money will be used along with full-bodied coin, it does not show why the former should be *preferred* in place of the latter, as would seem to be the case if the initial statement of the paragraph is correct. To the extent that this preference for credit money exists, it may be explained as a result of the *convenient* size and shape of such money. Most credit money is made out of paper and can be carried about in a variety of denominations without difficulty. Convenience, of course, is not an exclusive attribute of credit money. Gold certificates are just as convenient and, consequently, show just as great tenacity in circulation as does paper credit money. On the other hand, the silver dollars which are coined by the United States and which are a form of metallic credit money are bulky and inconvenient to handle, and they will not circulate in their metallic form except in certain parts of the country, notably the west and some parts of the south, where the inhabitants, as a result of long-standing custom, exhibit a preference for hard (metallic) money as opposed to paper money of any sort. Throughout by far the greater portion of the country, silver dollars can

[9] Chapter III, pp. 54–55.

be made to circulate only in the form of the convenient silver certificate.

It is thus apparent that it is not a preference for credit money *per se* which makes it exhibit a greater tenacity in circulation than does full-bodied money, but rather a preference for paper money in general because of its greater convenience. Given the requisite degree of confidence in the various forms of credit money, and it is largely a matter of indifference to the individual whether he receives gold certificates, government notes, or the notes of commercial banks, since all are equally convenient for his purposes. Inasmuch as this is the case, it may be stated in the form of a generalization that *when a number of different types of money are equally acceptable to individuals, the composition of the domestic circulation will be determined largely by the action of the banks in paying out money to their customers.* In the modern community, there is a continuous flow of money into and out of the banks. If the banks, therefore, have the option of meeting their customers' demands for money with a number of equally acceptable varieties of money, they will naturally pay out that type (or those types) of money which best suit their own interests. Thus, in the United States, gold certificates amounting to $178,555,000 and Federal reserve notes to the amount of $2,393,085,000 were in circulation on December 31, 1921, while on December 31, 1927, gold certificates in circulation amounted to $1,073,735,000, while Federal reserve notes in circulation had decreased in amount to $1,762,794,000.[10] During the war and post-war periods, the Federal reserve banks made it a practice to pay out as little gold (or gold certificates) as possible, as it was then deemed desirable to concentrate the gold in the vaults of these banks. By 1922, however, the gold reserves of the reserve banks had become very large, so that it was thought advisable to reverse the earlier policy and

[10] *Federal Reserve Bulletin*, March, 1928, p. 176.

pay out gold certificates instead of Federal reserve notes. This alteration of policy was followed with the resulting change in the relative proportions of Federal reserve notes and gold certificates in circulation which has been noted above.

The effect of legal tender on the circulation of credit money.—In the absence of other provisions, it is ordinarily necessary to provide for the easy convertibility of credit money into standard money in order to insure the ready circulation of the former at a parity of value with the latter. But, even though the redemption of credit money is not made convenient and easy, it may be made to circulate at par with standard money by giving it some important legal tender powers. National bank notes in the United States, for example, are redeemable only at the Treasury in Washington or at the issuing bank, so that the note of a New York City national bank would not be readily redeemable in many parts of the country. Yet these notes are receivable at par in practically all payments to the government and must be accepted at par by any national bank. As a result, it is possible to dispose of these notes at par without the slightest difficulty and the valid tender powers which have been granted them have been sufficient to keep them at par with standard money in spite of the lack of adequate provisions for redemption. The same result may be obtained, of course, by granting legal tender powers to any type of credit money (other than bank notes) which is not readily redeemable at a number of conveniently located places. In fact, if the amount is sufficiently limited, credit money may be made to circulate at par with the standard when it is not directly redeemable at all. The legal tender power will make such money generally acceptable at par and, if it is present in such limited quantities that it will readily be absorbed in the permanent circulation of the country, it will continue to circulate at par although not redeemable. Nevertheless, an

indirect method of redemption must exist, if money of this sort is not to drive the standard money to a premium and usurp the place of the latter. By this it is meant that the government must meet all of its own obligations in standard money if such is desired. Then, since the legal tender credit money may be paid in to the government in tax payments, while the government meets its own payments in standard money, an indirect convertibility exists which will keep the credit money at par with the standard.

Danger involved in granting legal tender power to credit money.—While the granting of legal tender power is an easy method of keeping credit money at par with the standard, it is fraught with considerable danger if adequate provision for the easy redemption of the credit money does not exist. Being legal tender, the latter type of money can be used for all domestic payments and will tend to displace standard money in the domestic circulation, while the latter, assuming it to be full-bodied, will be exported from the country or used in the arts. This, of course, weakens the gold basis of the currency and, if the amount of legal tender credit money is issued to a sufficient extent, it may force the government to suspend redemption entirely because of the latter's inability to meet the demands of individuals or banks for the conversion of their credit money into gold. This is a situation which should be avoided if possible.[11] It is just as effective for purposes of keeping credit money in circulation at par, and much safer, to provide for the easy redemption of such money at all times. If this is done, there will be no real necessity for the legal tender powers and no danger that the supply of this type of money may become excessive and result in an undue loss of gold from the country's monetary stock. This is demonstrated in the case

[11] At least, as long as the existing standard is deemed the most desirable. For a critical estimate of various standards of value, see the final chapter of this book.

of the check currency which has no legal tender powers. It is to the interest of any banker who has received a check on another bank to see that this check is presented to the drawee bank for payment at the earliest opportunity. Since this is the case, all bankers realize that checks drawn against them by depositors will be presented quickly for payment, and it follows that it is to the interest of bankers not to expand their operations beyond the point at which they can readily meet the demands for payment which they are certain to encounter. This constant redemption of checks through presentation at the clearing house is, therefore, one of the strongest forces which works to prevent an undue expansion of the check currency. It may also be said of Federal reserve notes in this country that, while they do have important legal tender powers of a similar sort to those granted to national bank notes, the motives for redemption of these notes are strong enough to prevent such issues from becoming excessive by remaining in circulation very long after the need for them has passed.

Wide use of the check currency a matter of convenience.— It was remarked above (p. 97) that the attribute of convenience plays a considerable part in the preference exhibited by individuals for paper money as compared with coin. In the case of the check currency, this attribute plays an especially important part. Given the requisite degree of confidence in the banks of a system, the wide use of the check currency is *largely* a result of the convenience it affords to the user. First, blank checks may be carried about by a person without the slightest danger of loss, as the mere form on which a check is usually written is not of the slightest use to anyone. Second, when a payment has to be made, a check can be drawn for the exact amount of the payment, so that the necessity for making change is obviated. Third, the cancelled check furnishes legal evidence that the payment has been made. Lastly, when checks are made payable to

a specific party or his order, as is usually the case, they may be sent through the mails without registration or insurance, since the payee's endorsement is required before the check can be cashed or deposited for credit to his account. This necessity for endorsement, in addition to the lack of confidence in any individual drawer on the part of the community at large, prevents any given check from circulating widely, but it does not prevent the deposit right from so circulating, as already explained.[12] As a matter of fact, it is the very necessity of endorsement that makes the check such a safe and convenient means for the payment of distant creditors. All told, once sufficient confidence in the banking system has been engendered, the convenience and safety of the check currency will insure its widespread use.

In spite of its great convenience in many ways, the entire substitution of a check currency for other forms of credit money is almost impossible to imagine. In fact, in small transactions, the use of checks is more inconvenient than otherwise. Even if all common laborers, and others with comparatively small incomes, found it advisable and possible to establish checking accounts at the bank (which is unlikely), there would still be a demand for hand-to-hand money of the smaller denominations to take care of small retail transactions. No one wants to be bothered with the necessity of making out a check to pay for a box of matches or a package of cigarettes, or a score of other minor purchases. Further, if payments of this size came to be made at all generally by check, the banks would be forced to exact a charge for taking care of the vast mass of bookkeeping transactions which would result from such a course, and this, in itself, would tend to put a damper on such a development. We may therefore safely assert that it will always continue to be necessary for the banks or the government to supply notes or coin of $1 to $5 denominations, and for the

[12] Chapter IV.

government to arrange for a supply of fractional or subsidiary money to meet the needs of the public in the smaller transactions.

The circulation of subsidiary money.—Subsidiary money is a form of metallic credit money and, as such, its circulation is governed for the most part by the same forces which affect the circulation of other types of credit money. If it is kept easily redeemable in standard money on demand, so that any excess of such money above the needs of business may be converted without difficulty into standard money, it will circulate at par with the standard. However, direct convertibility is not essential to the circulation of subsidiary money at par. So long as the government will receive it at par in unlimited amounts in the payment of taxes or other imposts, the amount in circulation will not become excessive, for any redundance will be used in making payments to the government and will thus be removed from circulation. This will be the case, at least, if the subsidiary money is given no, or extremely limited, legal tender power in payments between individuals. If, on the other hand, subsidiary money is made full legal tender and is, at the same time, inconvertible into standard money, any excess of such money above the needs of business will tend to remain in circulation and displace a corresponding amount of standard money. For this reason, subsidiary coin is always made limited legal tender in payments between individuals if it is not redeemable in standard money.[13]

If subsidiary coins were made full-weight, they would not belong to the class of credit money and the precautions noted would not have to be observed. It would be necessary neither to redeem them nor to limit their legal tender powers. Fractional gold coins, however, would be so minute as to be

[13] Subsidiary money which is redeemable is also usually restricted as to legal tender in similar fashion. This is advisable for a different reason, namely, to prevent a disgruntled debtor from paying a large debt in such money and so creating a nuisance.

useless for circulation purposes, so that gold standard countries have found it necessary to use silver in the manufacture of fractional coins. But if full-weight silver subsidiary coins are used in a gold standard country, any increase in the value of silver relatively to gold will make the silver coins more valuable as bullion than as money and they will disappear from circulation under the operation of Gresham's law, as they did in the United States between 1849 and 1853. It therefore seems clear that the most satisfactory type of subsidiary money is short-weight coin which is limited in legal tender power and which—to make doubly sure of its proper circulation at par—is convertible into standard money upon demand.

The circulation of foreign moneys.—*Under normal conditions, foreign moneys will not continuously circulate in any given country without some measure of legal sanction from that country.* This is true because people generally have a certain distrust of foreign things, and usually have more confidence in their own government than in that of other countries. Although Canada, for example, has the same monetary standard and the same denominations of money as the United States, Canadian money will not circulate in this country except in a few border cities, and in these cities the circulation is largely confined to subsidiary coin. On the other hand, Federal reserve notes circulate readily in Cuba since they have been made legal tender by the Cuban government. Although true when conditions are normal, this principle will not always work out if abnormal conditions exist. In Germany, for example, after the Great War, when the mark was depreciating in value with tremendous rapidity, Federal reserve notes or other forms of American currency were much more acceptable to the people of Germany than were marks, for the former money retained its value over a period of time, while the latter depreciated through each succeeding hour of the day.

Conclusion.—The principles which govern the circulation of money are naturally of great practical importance to governments, for, by a knowledge of these laws, they are enabled to determine what desirable results may be attained by means of monetary legislation and, what is equally important, they are also made cognizant of the bad effects which will follow legislation of an ill-advised nature. Since the widespread abandonment of the bimetallic standard, the effects of Gresham's law in eliminating the over-rated money from the general circulation have ceased to be of practical moment. It is rather the principles which apply to the circulation of credit money which are of immediate interest. The chief problem in connection with the circulation of credit money is that of keeping such money in circulation at a parity of value with the standard money, while yet not permitting it to displace the standard entirely. There is an easy and adequate solution to this problem which every government should bear in mind at all times, and that is to keep all forms of credit money *readily* convertible into standard money by providing adequate and conveniently located reserves of the latter for this purpose. If this simple rule is followed, there will be no difficulty in keeping credit money in circulation at par without giving it legal tender powers or other privileges. In fact, it would be *better* to *refrain* from granting legal tender power to any form of credit money, for the absence of such power acts as an incentive to the prompt presentation for redemption of any surplus of such money as may get into circulation. While most governments do not proceed this far, but instead grant more or less complete legal tender power to some or all forms of credit money, they do, as a rule, require the maintenance of reserves of standard money for redemption purposes. This has the effect of concentrating the bulk of the standard money in the vaults of the banks or the treasury, while the instruments of exchange most widely used in the actual cir-

culation are the various forms of credit money. The reserves are then drawn on chiefly to obtain gold for shipment to foreign countries, and for use in the arts. The movements of money between different countries constitutes a part of the general subject of the circulation of money and may be referred to as international circulation, but the discussion of this phase of the subject will have to await treatment in a later chapter on foreign exchange.

We have now covered all the more important aspects of the typical monetary system and are ready to turn our attention, in the chapters which follow, to the monetary system of the United States.

QUESTIONS FOR STUDY

1. What is meant by the circulation of money?
2. Give the simplest statement of Gresham's law.
3. Why is the simplest statement of Gresham's law misleading? State the law more accurately.
4. Explain carefully how Gresham's law operates (in a country on a bimetallic standard) to cause the under-rated money to disappear from circulation.
5. "If the mint ratio of silver to gold is 16:1, while the ratio in the market is $16\frac{1}{2}:1$, silver will disappear from circulation and gold will become the standard." Is this statement sound? Why or why not?
6. Illustrate the working of Gresham's law by reference to the English situation in the reign of Queen Elizabeth. What differences were there, if any, between this situation and that which prevailed in the reign of William III? In what manner were conditions remedied in the latter case?
7. Point out the relation between legal tender powers and the working of Gresham's law.
8. Explain why credit money frequently shows greater tenacity in circulation than does full-bodied money. Illustrate this by the case of silver certificates in the United States.
9. Does the action of the banks affect the circulation of credit money in any way? If so, how?
10. Why does the granting of legal tender powers to credit money involve an element of danger? Of what does the danger consist?

11. Give four reasons for the convenience of the check currency.
12. Is it probable that the check currency will ever supplant all other forms of domestic money? Why or why not?
13. Which characteristics of subsidiary money have to do with securing the proper circulation of such money and why?
14. Under what conditions will foreign money circulate in any given country? How do you explain the fact that it will not so circulate in the majority of cases?

BIBLIOGRAPHICAL NOTE

More or less complete discussions of the circulation of money are to be found in practically all the standard works on money. A complete analysis of Gresham's law together with numerous historical illustrations is given in J. L. Laughlin, *The Principles of Money,* Chapter XII. The same author's *The History of Bimetallism in the United States* (New York, 1893), contains much material which is pertinent to the operation of Gresham's law in the monetary development of this country. F. M. Taylor, *Some Chapters on Money,* Chapter III, contains an accurate and subtle analysis of the principles which govern the circulation of money. W. S. Jevons, *Money and the Mechanism of Exchange,* Chapter VIII, contains a clear treatment of the same subject. The present chapter enlarges on the usual treatment of the subject by including a discussion of the use of checks, a discussion which is usually not included under the head of the circulation of money.

CHAPTER VI

THE MONETARY SYSTEM OF THE UNITED STATES

Present status of the system.—The act of March 14, 1900, definitely placed the United States upon a gold standard by declaring the unit of value to be the dollar, containing twenty-five and eight-tenths grains of gold nine-tenths fine, and by directing the Secretary of the Treasury to maintain all other moneys issued or coined by the United States at par with this gold unit. With one brief exception (to be noted later), the gold standard has been maintained in this country since the passage of this act. At the present time gold is freely and gratuitously coined at the United States mint, and the other moneys of the system are convertible either directly or indirectly into gold coin, so that the value attaching to 23.22 grains of fine gold fixes the value of the standard money and, through the latter, of the other moneys of the system. The denomination system used in the United States is the decimal system with the dollar as the primary or basic unit and the other denominations expressed as decimal fractions or multiples of this unit.

The different moneys now in use in the United States are as follows:

1. Gold coin (and certificates)
2. Silver dollars (and certificates)
3. Subsidiary coin (including minor coin)
4. United States notes
5. Treasury notes of 1890
6. National bank notes

7. Federal reserve bank notes
8. Federal reserve notes
9. Check currency

We shall consider briefly the more important factual characteristics of each of these kinds of money.

(1) Gold coin (and certificates).—Gold may be freely coined at the mint in denominations of $20, $10, $5, and $2½, called double eagles, eagles, half eagles, and quarter eagles, respectively. The gold dollar when coined is too small for convenient use, and no gold dollar coins have been regularly struck at the mint since 1890. Gold coins of the larger denominations contain multiples of the amount of gold in the dollar in proportion to their denominations and are hence full-bodied coins. They are nine-tenths fine, and are full legal tender in the payment of debts.

Gold certificates are mere warehouse receipts for gold coin or bullion deposited with the Treasury. They may be issued in denominations of $10 to $10,000 and, since 1919, have been full legal tender. The use of gold certificates represents merely a convenient method of circulating gold. That they prove more satisfactory than gold coin for purposes of domestic circulation is shown by the fact that gold certificates in circulation on June 30, 1927, amounted to $1,007,074,839, as compared with a circulation of gold coin to the amount of $386,056,393, on the same date.[1]

(2) Silver dollars (and certificates).—Silver dollars have not been freely coined since 1873. They have been coined in limited amounts by the government since that year, however. Silver dollars contain 412.5 grains of standard silver (nine-tenths fine) or 371.25 grains of fine silver, and had a bullion value in 1926 of $0.48284.[2] They are full legal

[1] *Annual Report of the Director of the Mint*, 1927, p. 102. Amounts of other types of money in circulation on the same date, as given at the end of the discussion of each type, are from the same source unless otherwise noted.

[2] *Ibid.*, p. 119.

tender in the payment of debts except where otherwise expressly stated in the contract. Being short in weight, silver dollars are a form of government metallic credit money. Although not directly convertible into gold coin by law, they are indirectly redeemable, as they are legal tender in payments to the government, while the government will pay out gold if requested to meet its obligations. The government's policy of paying out gold, while yet receiving silver dollars in payments to it, together with the limited quantity of silver dollars in existence, is amply sufficient to maintain the latter money at par with gold coin.

In 1878, the issuance of silver certificates in denominations of not less than $10 was authorized. Since 1886, denominations of $1, $2, and $5 have been permitted and 90 per cent of all such certificates are now issued in the latter denominations. The other 10 per cent may be issued in larger denominations up to $100. Silver certificates are not legal tender, but are much more widely used in circulation than silver dollars, which are large and cumbersome. The amount of silver certificates in circulation on June 30, 1927, was $375,798,241, as compared with 48,716,860 silver dollars.

(3) Subsidiary coin.—The subsidiary coin of the United States consists of silver half dollars, quarter dollars, and dimes, nickel five-cent pieces, and copper cents. The two last mentioned coins are termed minor coins and are mere tokens for use in very small transactions. The subsidiary silver coins are nine-tenths fine, but are short in weight, containing approximately 6.47 per cent less pure silver, in proportion, than is contained in the silver dollar which is itself short in weight in the sum of $1. They are redeemable in standard money on demand and are legal tender up to $10 in the sum of $20 or multiples thereof. They are legal tender in payments of less valuable metal than that which constitutes the standard of value only, in any one payment. They are made of less valuable metal than that which constitutes the standard of value, and they are coined in limited amounts

for the account of the United States government. The subsidiary silver coin of the United States, therefore, embodies all of the characteristics of subsidiary coin as set forth in an earlier connection (pp. 47–48).

The five-cent piece, or so-called nickel, contains 75 per cent copper and 25 per cent nickel. The one-cent piece is really a bronze coin containing 95 per cent copper and 5 per cent tin and zinc. Both types of coins are short in weight, coined for government account, and limited in their legal tender power to payments of 25 cents.

On June 30, 1927, subsidiary silver in circulation amounted to $275,604,480. Figures showing the amount of minor coin in circulation are not given in the regular circulation statements issued by the Director of the Mint, but the total amount of minor coins issued and outstanding on June 30, 1927, was $114,433,966.01.[3]

(4) United States notes.—These are formal paper notes of the United States government. They are full legal tender except in payments of import duties and interest on the public debt. They are redeemable in gold on demand at the Treasury in Washington where the Secretary of the Treasury is authorized to maintain a gold fund of $150,000,000, for the purposes of such redemption. The amount outstanding on June 30, 1927, was $346,681,016, of which $292,205,453, was in circulation. United States notes are a form of government paper credit money.

(5) Treasury notes of 1890.—These are paper obligations of the United States government. They are secured by 100 per cent of silver dollars held in the Treasury and are redeemable in either gold or silver on demand. They are full legal tender except where otherwise stated in the contract. They have been largely retired since their issuance, the amount outstanding and in circulation on June 30, 1927, being but $1,326,804.

[3] *Ibid.*, p. 10.

(6) National bank notes.—National bank notes are the promises of the issuing national banks to pay to the bearer on demand certain designated sums in lawful money. The term *lawful money,* as it is used in the United States, includes all forms of money coined or issued by the government with the exception of subsidiary silver and minor coins. A national bank, to issue notes, must comply with the following requirements: Registered bonds of the United States, bearing what is called the circulation privilege, must be deposited with the Treasury to a value equal to the par value of the notes which the bank wishes to issue. The value of the bonds is taken as the par or market value, whichever is lower. In addition to the deposited bonds, the issuing bank has to place with the Treasury an amount of lawful money for redemption purposes which equals five per cent of its notes in circulation. The Comptroller of the Currency (an official appointed by the President, who acts as a supervisor or superintendent of banks for the national banking system) is empowered, upon receipt of the bonds by the Treasury, to issue notes to the bank in question, although the expenses of the engraving and printing must be borne by the issuing bank. A limitation on the issues of any single bank is placed at a figure equal to the bank's paid-in capital.

National bank notes may be issued in denominations of $1, $2, $5, $10, $20, $50, $100, $500, and $1,000. They are redeemable in lawful money at the issuing bank and at the Treasury in Washington. They are not legal tender, but are receivable at par in the payment of taxes and all public dues except duties on imports, and they must be received at par by any national bank. They are obligations of the United States, and hence come under the head of guaranteed bank note issues. The amount in circulation on June 30, 1927, was $650,057,336.

(7) Federal reserve bank notes.—Federal reserve bank notes are identical with national bank notes in all respects

except that they are issued by Federal reserve banks instead of national banks and that there is no limitation on the issues of a single reserve bank. The provision for the issuance of such notes in the Federal Reserve Act of 1913 was for the purpose of bringing about a gradual retirement of national bank notes by a process of substitution. They have never been widely issued for this purpose, however, although issued in considerable amounts for a short period in another connection to be described later in the chapter. The amount in circulation on June 30, 1927, was only $4,605,575.

(8) Federal reserve notes.—Federal reserve notes are notes of the Federal reserve banks and are also obligations of the United States. They must be secured by gold or commercial paper to 100 per cent of the par value of the notes issued, and a gold reserve of 40 per cent of the notes in circulation must be maintained by the issuing banks for redemption purposes, at least one-eighth of which must be kept as a redemption fund with the Treasury Department. Such gold as is used as security may also be counted as part of the 40 per cent required reserve. Federal reserve notes are redeemable in gold at the Treasury in Washington or in gold or lawful money at any Federal reserve bank. Although not full legal tender, they are receivable at par by all national and member banks and for all taxes, customs, and other public dues. They are issuable in denominations of $5 to $10,000. The amount in circulation on June 30, 1927, was $1,702,843,437.

(9) Check currency.—Although not included under the head of hand-to-hand money, the check currency forms the most important single means of payment used in the United States. Checks are not issued in specific denominations as they may be written for any amount. Since checks are drawn by individuals against their deposit accounts, and are hence obligations of the bank only when the drawer has a

sufficient deposit credit to cover the amount of the check, they are never given legal tender powers in any degree, but, when properly drawn, they are payable in lawful money on demand by the drawee bank. While the check currency is not provided for in the monetary laws of the country, being rather a natural development, its convenience and efficiency as a means of payment has led to its wide use. The most accurate available measure of the extent of the check currency is that of net demand deposits, against which checks may be drawn. The total of such deposits for all member banks of the Federal reserve system, on June 30, 1927, was $19,208,041,000.[4]

The foregoing tabulation and description of the various kinds of money now in use in the United States indicate the complexity of the country's monetary system. The presence in the system of such a varied assortment of moneys is only to be explained in the light of the operation of historical forces. Therefore, in order to understand the existing structure of the monetary system, it will be necessary to trace briefly the outstanding features of its development. Such portions of the banking aspects of this development as are necessary to our purpose will be considered in the following chapter. For the present, we are concerned only with those forms of money which have been issued by the United States government.

The Development of the Monetary System of the United States

First period, 1792–1834.—The first legally authorized monetary system of the United States was adopted with the passage of the coinage act of 1792. This act provided for (1) the establishment of a mint, (2) the gold dollar unit consisting of 24.75 grains of fine gold and the silver dollar

[4] *Federal Reserve Bulletin*, September, 1927, p. 686.

unit consisting of 371.25 grains of fine silver, (3) the adoption of the decimal system of denominations, and (4) the free and gratuitous coinage of certain specified gold and silver coins of the denomination, weight, and fineness indicated in the accompanying table, at a ratio of 1:15.

Denomination	Name	Metal	Gross Wt. (grains)	Fine Wt. (grains)	Fineness
$10	Eagle	Gold	270.00	247.50	0.91667
5	Half Eagle	Gold	135.00	123.75	0.91667
2½	Quarter Eagle	Gold	67.50	61.875	0.91667
1	Dollar	Silver	416.00	371.25	0.892
0.50	Half Dollar	Silver	208.00	185.625	0.892
0.25	Quarter Dollar	Silver	104.00	92.8125	0.892
0.10	Disme	Silver	41.60	37.125	0.892
0.05	Half Disme	Silver	20.80	18.5625	0.892
0.01	Cent	Copper			

Source: *Coinage Laws of the United States*, Act of April 2, 1792.

The coinage ratio of 1:15, which was adopted in 1792, was at first nearly in accord with the ratio of gold to silver in the bullion markets. Consequently, for a time, both gold and silver were coined at the mint and circulated side by side within the country. Not long after the beginning of the nineteenth century, however, silver began to fall in value relatively to gold, with the result that the ratio of 1:15 overrated silver at the mint. The latter metal, accordingly, tended to displace gold in the circulation of the country and, by 1810—1812, gold had practically disappeared from circulation. Even earlier than this—by 1806—the amount of silver brought to the mint for coinage, as measured in dollar value, began to exceed that of gold, and this excess of silver over gold coinage continued with but one exception

each year until 1833.[5] The total dollar value of gold coined at the mint from 1806–1833 inclusive was but $9,278,332, as compared with a total value of silver of $34,364,669 during the same period.[6] This was the case in spite of the fact that no silver dollars were coined by the mint from 1806 until 1836, the bulk of the silver coins which were struck during these years being silver half dollars.[7]

Although the United States was legally on a bimetallic standard during the entire period, 1792–1834, with a mint ratio of 1:15, practically, the standard of value was silver for somewhat over one-half of this time, gold having almost disappeared from circulation by 1810. The obvious cause of the disappearance of gold from circulation was a mint ratio which over-valued silver and so made it profitable to utilize gold in the arts or for export purposes rather than to have it coined for use as money. In order to correct this situation, it was necessary to alter the ratio at which gold and silver would be received at the mint for coinage.

Second period, 1834–1862.—By the act of June 28, 1834, the mint ratio of gold to silver was altered, but to an extent that made it evident that gold would be over-valued at the mint instead of silver. The new law left the silver dollar of the same weight and fineness as before, but reduced the weight of pure gold in the eagle (and in other gold coins in proportion) from 247.5 grains to 232 grains, while its gross or standard weight was reduced from 270 grains to 258 grains, thus giving the gold coins a fineness of 0.899225. The unit of value, the dollar, was accordingly fixed at 23.2 grains of fine gold or 371.25 grains of fine silver, which re-

[5] "The exceptional gold coinage of 1820 was due to special importations of gold by the Bank of the United States, in order to bring about specie payments." Laughlin, *The History of Bimetallism in the United States*, p. 31, footnote 1. This particular year—1820—is the exception referred to.

[6] Totals computed from the annual totals for the years in question as shown in the *Report of the Director of the Mint*, 1927, p. 94.

[7] *Ibid.*, p. 90.

sulted in a mint ratio of 1:16.002. A subsequent act, January 18, 1837, brought about a uniform fineness of .900 of gold and silver coins by reducing the gross weight of the silver dollar from 416 grains to 412.5 grains, leaving the fine weight as before, and raising the fine weight of the eagle to 232.2 grains without altering its standard weight of 258 grains. This changed the coinage ratio slightly to 1:15.988 plus, usually referred to as 1:16, but this change was of minor significance and did not prevent gold from being overrated at the mint.

The ratio of 1:15, established by the act of 1792, had resulted in the withdrawal of gold from circulation. After 1834, with a ratio over-valuing gold, silver began to disappear from use as money. This resulted, in practice, in a single gold standard which would not have been objectionable in itself. The provisions of the act of 1792, however, had established the free coinage of full-weight fractional silver coins. Two half dollars, four quarters, or ten dimes, therefore, contained the same amount of fine silver as did a silver dollar. Since it paid to melt up silver dollars or to export them from the country, it also paid to melt or export the full-bodied fractional coin. By 1850, the country's business was seriously embarrassed by a lack of small change for conducting retail transactions, an embarrassment which was accentuated by new gold discoveries and the further appreciation of silver in terms of gold. Congress, in the act of March 3, 1849, had authorized the coinage of gold dollars (not previously authorized), but no provision had been made against the withdrawal of fractional silver coins from circulation. By the beginning of 1853, the situation had become so acute as to demand immediate action. On February 21, 1853, an act was approved which remedied the difficulty. The standard weight of half dollars was reduced from 206.25 grains to 192 grains, and the weights of the other fractional silver coins were reduced in proportion. The fine-

ness of .900 was retained, so that the reduction in the pure silver content of the fractional coins amounted to approximately 6.9 per cent. Fractional coins were to be struck on government account only and their legal tender powers were limited to sums not exceeding five dollars.

By reducing the silver content of the silver fractional coins, by limiting their coinage, and by restricting their legal tender powers, the act of 1853 established a true subsidiary coinage in the United States and took the first step toward placing the country upon a single gold basis. Silver dollars had never been coined in significant amounts since 1806, so that the removal of the rights of free coinage and full legal tender from fractional silver practically eliminated the use of silver as a standard of value.

The reduction in the fine silver content of the fractional coins so decreased their bullion value that they were no longer worth more as bullion than as money and, from 1853 on, no difficulty was experienced by the disappearance from circulation of fractional silver coins. The country accordingly maintained a gold currency with subsidiary silver until the time of the Civil War.

Third period, 1862–1879.—During this period the monetary system of the United States was on an irredeemable paper basis. The issues of United States notes, or greenbacks as they are popularly termed, resulted from the war finance policy followed by the government at the time of the Civil War and marked the beginning of paper money issues by the United States government.[8] The act of February 25, 1862, authorized an initial issue of $150,000,000, one-third of which was for the purpose of retiring a like amount of demand notes which had been issued in the summer of the previous year. A second issue of $150,000,000 was author-

[8] This is not strictly accurate. Something over $3,000,000 of treasury notes of less than $100 denomination and bearing no interest were issued under the act of February 24, 1815, and were used as money. Because of the smallness of the issue, however,

ized in July of 1862, $50,000,000 of which was to be temporary. On March 3, 1863, a third issue of $150,000,000 was authorized. This was the final issue, so that a total of $450,000,000 of these notes was authorized and issued in the course of the war.

Since the notes so issued by the government were not redeemable in gold on demand, although they were full legal tender in all payments except duty on imports and interest on the public debt, and were also issued in excess of the monetary needs of the country, gold immediately went to a premium and greenbacks became the basic money of the system, a situation which continued until 1879. Not only was paper money the circulating medium for the larger denominations during this period, but for the fractional currency as well. Soon after the beginning of 1862, the paper dollar had depreciated in value to an extent that made profitable the withdrawal of subsidiary silver from circulation. The first legal tender act had prohibited the issuance of notes of less than five-dollar denominations. The second legal tender act authorized one-dollar notes, but this did not remedy the difficulties that business was experiencing as a result of the disappearance of subsidiary silver. Temporary unauthorized tokens—known as shinplasters—had been issued by business firms and individuals to meet the need for small change, but the resulting situation was highly unsatisfactory and demanded a remedy. Further, the Treasury was frequently embarrassed in the making of small payments. Consequently, on July 17, 1862, six days after the passage of the second legal tender act, another act was passed authorizing the use of fractional paper money or so-called "postage stamp" currency. Such small denominations were accordingly put into use, and the redemption of this frac-

they have been disregarded. The demand notes of 1861 were a kind of cross between one year treasury notes and paper money, and have also been disregarded.

tional paper currency on a large scale did not begin until after the passage of the act of 1875, which provided for the resumption of specie payments.[9] Even the minor coins bore a premium during the war period, but remained in circulation as their metal content was not sufficient to warrant their melting or export.[10]

The subsequent history of the greenbacks may be briefly stated. An act, passed on April 12, 1866, provided that United States notes might be retired to the amount of $10,000,000 during the following six months and at a rate of not more than $4,000,000 per month thereafter. This authority was suspended by the act of February 4, 1868, only about $44,000,000 of notes out of a possible $70,000,000 having been retired by the latter date. After the panic of 1873, the government reissued $26,000,000 of the cancelled notes in response to a public demand for them. The amount outstanding after this reissue remained at $382,000,000 until the gold resumption act of January 14, 1875, which provided for a reduction of this amount to $300,000,000. By May 31, 1878, the amount of greenbacks outstanding had been reduced to $346,681,016. An act of the latter date abruptly halted the policy of deflation and required the notes to be reissued whenever redeemed. This requirement has not been altered by subsequent legislation, and the last mentioned amount still remains outstanding. Since January 1, 1879, when gold resumption began, United States notes have been redeemable in gold at the Treasury.[11]

[9] The so-called stamps which were used as fractional currency were printed on both sides and differed in other ways from the ordinary postage stamp. See Mitchell, *A History of the Greenbacks*, Pt. II, Chap. II, for an admirable account of the currency during the war period.

[10] *Ibid.*, Section V.

[11] The factual material contained in these sections has been procured from a government pamphlet, *Monetary Systems of the Principal Countries of the World*, compiled in the office of the Director of the Mint, 1916, pp. 5–7.

The act of February 12, 1873.—Although the United States was on an irredeemable paper basis until 1879, two monetary laws of importance—aside from the resumption act—were passed in the later years of this period. The first of these was the act of February 12, 1873. The most significant feature of this law, from the point of view of monetary development, was that it officially dropped the silver dollar from the list of coins which could be struck at the mint. A heavier trade dollar of silver was authorized for export trade purposes, but the standard silver dollar was definitely dropped. Since the other authorized silver coins were subsidiary, this had the effect of placing the United States, legally, upon a single gold standard. Very shortly after the passage of this act the silver interests, for reasons which will appear presently, found to their chagrin that it was no longer possible to have their silver freely coined into standard dollars. They thereupon claimed that the law of 1873 had resulted from a conspiracy in Congress against these interests, and they accordingly dubbed it "the Crime of '73." That such an accusation was false is perfectly clear from a study of the facts. The bill was openly passed in the presence of the representatives of the silver interests without arousing any great outcry. As a matter of fact, the coinage of silver dollars had been trifling since the opening of the mint and the silver dollar coin was dropped because there was not at that time, and had not been for years, any noteworthy demand for it.

The reason for the vexation of the silver owners with the act of 1873 is to be found in a change in the market ratio of gold to silver which occurred about this time. The mint ratio of 1:15.988, which had been on the statute books since 1837, had over-rated gold and, by the operation of Gresham's law, had caused silver to disappear from circulation. During the latter years of the period, 1837–1873, the value of silver had been falling relatively to that of gold.

This decrease in the value of silver resulted from a rapidly increasing production of the metal, as compared with gold, from metallurgical improvements in recovering the metal from the ore, and from certain changes in the monetary arrangements of Germany and other European countries. Although this situation was not recognized by the lawmakers at the time of the passage of the act of 1873, it nevertheless existed. By 1873, the market ratio of gold to silver had reached 1:15.93, had descended to 1:16.16 by 1874, and to 1:17.75 by 1876.[12] Clearly, the coinage of silver dollars at the old ratio of 1:15.988 would have proved highly profitable by the latter year. The discontent of the silver interests with the monetary situation following 1873 is, therefore, easily explained.

The act of February 28, 1878.—Nor were the silver owners satisfied to let matters rest as they were. Successive attempts to secure legislation for their own benefit were finally successful in part, but in part only. The outcome of these efforts was the act of February 28, 1878. By this law, the Secretary of the Treasury was directed to purchase silver bullion, at its market price, to the extent of not less than $2,000,000 worth nor more than $4,000,000 worth per month, and to require this bullion to be coined into standard silver dollars of the former weight and fineness. This was limited coinage and was not what the silver interests wanted. They were forced to rest content with this expedient, however, for a number of years. Meanwhile, the Treasury began the redemption of United States notes in gold on January 1, 1879, and the country was once again on a gold standard.

Fourth period, 1879–1900.—As a result of favorable natural and economic forces, the country was able to maintain the gold redemption of greenbacks which had been begun in 1879. Nevertheless, all was not clear sailing. The silver

[12] *Report of the Director of the Mint*, 1927, p. 112.

group, not content with the act of 1878, as already noted, continued active in its efforts to obtain legislation more suited to its purposes. The result was the *Sherman Silver-Purchase Act of 1890.* By the terms of this act, the Secretary of the Treasury was directed to purchase monthly, at a price not to exceed one dollar for 371.25 grains, 4,500,000 ounces of silver or such fraction thereof as should be offered on the market. To pay for this silver, the Secretary was authorized to issue Treasury notes of the United States. These notes were to be redeemable at the Treasury on demand *in either gold or silver* at the discretion of the Secretary of the Treasury, and they were to be full legal tender in the payment of debts except where otherwise expressly stipulated in the contract. Of the bullion purchased each month, 2,000,000 ounces was to be coined into silver dollars each month until July 1, 1891. After that, as much was to be coined as was necessary to provide for the redemption in silver of the Treasury notes issued under the authority of the act.

The expulsion of gold.—The results of the act of 1890 very nearly caused the departure of the United States from the gold standard. Under the operation of the act, nearly $156,000,000 of legal tender notes was added to the lawful money stock of the country. The natural effect was to inflate the currency and increase speculative activity in the organized markets which, in turn, resulted in a loss of gold by export to foreign countries. The usual procedure by which the metal was obtained for foreign shipment was by the presentation of legal tender notes to the Treasury for redemption in gold, so that large exports of gold naturally resulted in a drain on the Treasury's stock of coin and bullion. In 1891 and 1892, the government's reserve for the redemption of legal tenders was drawn down to a marked extent. The year 1893 was a panic year, and it was the opinion of many that the difficulties of business were a result

of the undue increase in the country's monetary stock through the issuance of Treasury notes to pay for the monthly purchase of silver bullion. With difficulty an act was pushed through Congress (November 1, 1893) repealing the purchase clause of the Silver Purchase Act of 1890, but the mischief had already been done. It will be remembered that the redemption of Treasury notes of 1890 in either gold or silver was made optional with the Secretary of the Treasury. Treasury notes, therefore, might have been redeemed in silver, but gold redemption was maintained during all of this troublesome period in spite of the attenuation of the Treasury's gold reserve. To continue the redemption of legal tenders in gold, however, was not easy. Two issues of bonds, of $50,000,000 each, were sold for gold in 1894, one in January and one in November. The proceeds from these bond sales built up the gold reserve temporarily, but in each case it was soon drawn down again below the $100,000,000 mark. Early in 1895, the gold reserve all but disappeared and a departure from gold redemption seemed inevitable. Such an unfortunate occurrence was avoided through a timely agreement between President Cleveland and certain investment banking interests which involved the sale of another $62,000,000 of bonds to the investment bankers for gold. For a time the reserve was restored, but later in the year it again fell below $100,000,000. Finally, it was found necessary to sell another $100,000,000 of bonds in February, 1896. This loan was successful and subsequent difficulties with the gold reserve were avoided for the most part.

The act of March 14, 1900.—The death knell of the silver interests, at least as far as monetary legislation was concerned, was sounded in the presidential campaign of 1896. Under the leadership of the eloquent William Jennings Bryan, the Democratic party engaged in a hard contest for the presidency and the control of Congress

on a free silver platform. The return to the bimetallic system was favored with the free coinage of both gold and silver at the old ratio of 1:15.988, or "16 to 1," as it was called. However, since the market ratio of gold to silver was approximately 1 : 30 in 1896, a return to the old system would have resulted in a single silver standard, and the sanction by the government of a substantial partial repudiation of all the then existing debts which had been contracted prior to 1896. Fortunately for the reputation and welfare of the country, Bryan and his free silver followers were defeated at the polls. Bryan again advocated free silver coinage in the campaign of 1900, but by that time the question was pretty largely a dead issue, the so-called Gold Standard Act of 1900 having been passed before the presidential campaign got under way.

The title "Gold Standard Act" had been popularly applied to the act of March 14, 1900, because this statute definitely placed the country on a single gold standard. In the words of the opening section of the law, it was enacted "that the dollar consisting of twenty-five and eight-tenths grains of gold nine-tenths fine . . . shall be the standard unit of value, and all forms of money issued or coined by the United States shall be maintained at a parity of value with this standard, and it shall be the duty of the Secretary of the Treasury to maintain such parity." The act further provided that a gold redemption fund of $150,000,000 be maintained by the Secretary of the Treasury for the purpose of redeeming United States notes and Treasury notes of 1890 in gold. With regard to the latter notes, provision was made for the coining of subsidiary silver (up to $100,000,000 in amount) from the bullion purchased under authority of the act of 1890, and for the cancellation of a corresponding amount of Treasury notes, when they were presented for redemption in silver. The provision of the law of June 13, 1898, requiring the coinage of silver dollars from the bullion

purchased with Treasury notes, was reenacted. For the rest, the act contained certain provisions concerning the issuance of gold and silver certificates, and refunded certain bond issues which furnished security for national bank notes.

Fifth period, 1900–present.—After the passage of the act of March 14, 1900, no major developments took place in the governmental phases of the monetary system until shortly after the entrance of the United States into the Great War. In the fall of 1917, by presidential proclamation, the Federal Reserve Board was clothed with discretionary power to restrict the exportation of gold to foreign countries, no gold to be exported without the express permission of the Board. While some few gold exports were permitted, the Board stated in its Annual Report for 1917 that "applications for permission to ship gold to European neutral countries have, except for a few days following the date of the order, been invariably declined."[13] This embargo on gold exports continued until the summer of 1919.[14] For this brief period, therefore, the United States was not on a full gold standard. Convertibility of the other moneys of the system into gold, although discouraged, was maintained throughout the War. The maintenance of the gold standard, however, requires not only the convertibility of other moneys into gold, but freedom on the part of the converter to make use of the gold obtained as he sees fit, whether it be for export to foreign countries or for use in the arts. The United States, by restricting exports of the metal, prevented for a time the free flow of gold from the domestic money stock into other uses and accordingly abandoned the full gold standard for the period in question. While this procedure may have been justified for the purpose of retaining a large domestic gold stock as a basis for wartime credit expansion, it resulted,

[13] P. 21.

[14] *Annual Report of the Federal Reserve Board*, 1919, p. 50.

nevertheless, in the temporary departure from the gold standard which we have noted.

The War and the silver situation.—One other occurrence of importance had to do with the influence of the War on the position of the silver dollar in the monetary system. The silver dollar has long held an anomalous position in this system. Having several of the characteristics of subsidiary money, it is nevertheless full legal tender, is termed standard money by law, and is not specifically convertible into gold, although an indirect convertibility is maintained as already explained (p. 100). The gold standard act of 1900 made no provision for the elimination of the silver dollar from the monetary system and no particularly favorable opportunity to retire this unnecessary form of government credit money presented itself until the War period. As the War progressed, the value of silver rose rapidly relatively to gold, and England and, to some extent, the United States were made cognizant of the desirability of paying balances in India and the Orient in silver at the existing high price for that metal. To accomplish this end, Congress passed the Pittman Act in April, 1918, authorizing the retirement of as many silver certificates as possible, the melting up of the silver dollars held in the Treasury behind these certificates, and issuance of Federal reserve bank notes secured by Pittman certificates of indebtedness to take the place of the silver certificates withdrawn from circulation. The silver bullion was then to be shipped to India and some other Oriental countries for the account of England and for our own account.

If the provisions of the Pittman Act had stopped here, its passage would have been a most happy occurrence. The silver bullion was readily disposable at the highest price which had existed for years, and the United States had an excellent opportunity to rid its monetary system of an anom-

does not state all the facts,

alous and unnecessary element, the silver dollar. Unfortunately, however, the act went on to authorize the subsequent purchase, from domestic silver producers at a price of one dollar per ounce, of a sufficient amount of silver bullion to replace all the silver dollars which were to be broken up and shipped from the country. The purchase of this silver has now been completed and all but a trifling amount of it has already been coined into silver dollars, with the result that our present-day monetary system still finds itself burdened with the anomalous standard silver dollar which is not standard, and its companion, the silver certificate. Not for years, if ever, will another opportunity present itself to the United States government to be rid of the silver dollar in such easy and profitable fashion, nor is there any reason to believe that such an opportunity would be grasped if it did occur. On the other hand, should the government ever decide to eliminate the silver dollar, it could do so by using the silver in this stock of dollars for the coinage of subsidiary silver, instead of buying new silver in the market for this purpose. This method would be effective, but, at present silver prices, the profit to the government would be less than it would have been had advantage been taken of the opportunity offered in 1918.

Conclusion.—The preceding résumé of the historical development of this country's monetary system has indicated the reasons for its its present complexity. It is not quite so complex, however, as it may appear from a casual glance at the tabulation of the different kinds of money given in the first section of the chapter. Treasury notes of 1890 have been eliminated from circulation to all intents and purposes, the few which remain outstanding representing such of the notes as have been lost or destroyed, or those held by collectors. Federal reserve bank notes also, for reasons to be explained in the next chapter, are of no significance as a separate kind of money and may be omitted, for practical

purposes, from the list of the moneys of the system. Nevertheless, even without these two kinds of money, the system is more involved than is necessary. First, silver dollars (and certificates), as has been noted, might well be eliminated. Secondly, there is no real necessity for the retention in the system of United States notes. Finally, one satisfactory system of bank note issues would be ample. Under such a simplified system, the list of moneys used would be as follows:

1. Gold coin (and certificates)
2. Subsidiary money
3. Federal reserve notes [15]
4. Check currency

The possibility of such simplicity in our monetary system is practically nil. Once a given type of money has obtained a firm foothold in the system, the legislation necessary to eliminate it can be put through with the utmost difficulty, if at all, and, while greater simplicity would be desirable, it is not essential in most instances to the satisfactory working of the system. It is probable, therefore, that the monetary system of the United States will continue on the present basis for some time to come.

In conclusion, it seems advisable to present a classification of the different kinds of money in the existing system on a functional basis. This may be done by reproducing the classification which was given at the end of Chapter II, with the moneys of the United States system inserted in their proper places.

I. Standard of value
  A. Gold
    1. Unit of value
      Dollar—23.22 grains fine gold

[15] The reasons for choosing Federal reserve notes, instead of one of the other two types, will appear in the following chapter.

II. Standard money
  A. Full-bodied gold coin (and certificates)
    Double eagle ($20)
    Eagle ($10)
    Half eagle ($5)
    Quarter eagle ($2½)
    Gold certificates—$10 to $10,000

III. Credit money
  A. Government credit money
    1. Paper promises to pay standard money
      United States notes
      Treasury notes to 1890
    2. Short weight metallic money
      a. Unit and larger denominations
        Silver dollar (and certificates)
      b. Subsidiary money
        Half dollar
        Quarter dollar
        Dime
        Five-cent piece (nickel)
        Cent (bronze)
  B. Bank credit money
    1. Bank notes
      Federal reserve notes
      Federal reserve bank notes
      National bank notes
    2. Check currency.
      Demand deposits subject to check

We must now turn our attention to a more detailed analysis of the use of bank credit money in this country.

QUESTIONS FOR STUDY

1. Tabulate the different kinds of money which are now used in the United States, and estimate the relative importance of each as a medium of exchange.

2. Give the chief provisions of the coinage law of 1792.

3. "The coinage ratio of 1:15 resulted in the disappearance of gold from circulation in the years following 1810." Explain why this was the case.

4. "The acts of 1834 and 1837 so altered the mint ratio as to bring gold back into circulation, thereby again placing the country

on a bimetallic basis *in fact* as well as on the statute books." Criticize the last clause of the above statement.

5. In what way did the act of 1853 remedy the difficulties which the country had been experiencing from a lack of small change?

6. What were some of the untoward results of the government's policy of issuing legal tender notes to help finance the Civil War?

7. Why was the act of 1873 called "The Crime of '73" by the silver interests? Was such an appellation justified? Why or why not?

8. "The act of 1878 was not entirely what the silver interests wanted." What did they want, and why?

9. "The Sherman Silver Purchase Act of 1890 nearly resulted in the departure of the United States from the gold standard." Describe the events of the years 1890–1896 which demonstrate the truth of the above statement.

10. What were the chief provisions of the act of March 14, 1900? Why was this act important?

11. "The embargo on gold exports during the War period resulted in the temporary departure of the United States from a full gold standard." Why?

12. "Once a given type of money has gained a firm foothold in a monetary system, it is almost impossible to eliminate it from the system even if it is essentially undesirable." Illustrate the truth of this statement by reference to the action of the United States in 1918 in connection with the silver dollar.

13. How might the monetary system of the United States well be simplified?

14. Does the present complexity of our monetary system interfere unduly with its efficiency?

BIBLIOGRAPHICAL NOTE

Factual material concerning the monetary system of the United States is to be found in *Monetary Systems of the Principal Countries of the World* (Government Printing Office, 1916), already referred to, and in a mimeographed statement by the Treasury Department on *The Monetary System of the United States* which is revised to 1925. The coinage laws of the United States and the *Annual Reports of the Director of the Mint* are also valuable sources of factual information of a technical and legal variety.

There are few books which devote much space to monetary development in this country. J. L. Laughlin, *The History of Bimetallism in the United States* (New York, 1893), is excellent on monetary development to 1885. A. B. Hepburn, *A History of Currency in the United States* (New York, Revised Edition, 1924), covers the entire period of development from colonial times to the date of

publication of the 1924 edition. W. C. Mitchell, *A History of the Greenbacks* (Chicago, 1903), presents a masterful discussion and analysis of the currency situation and its effects on the economic community during the Civil War. R. D. Kilborne, *Principles of Money and Banking,* Chapters XII and XIII, are devoted to a treatment of our monetary history by periods which is somewhat similar to that of the present chapter, although somewhat more comprehensive. H. White, *Money and Banking,* Books I and II, furnishes interesting material in connection with certain parts of American monetary development.

Vivid accounts of American financial history which contain a good deal of interesting material on monetary development are to be found in A. D. Noyes, *Forty Years of American Finance, 1865–1907* (New York, 1909) and the same author's *The War Period of American Finance, 1908–1925* (New York, 1926). Scattered references to monetary development in this country are also to be found in D. R. Dewey, *Financial History of the United States* (New York, Eighth Edition, 1922). This volume contains an excellent bibliography, Sections III and IV of which are devoted to the works on monetary and banking development in this country.

Although other references might be given, the fact that the treatment of monetary development in the present chapter is merely incidental to an understanding of the present-day monetary arrangements makes the inclusion of additional titles seem unnecessary. Those interested in a more extensive list of references on our monetary development are referred to Professor Dewey's bibliography already mentioned.

CHAPTER VII

THE USE OF BANK NOTES IN THE UNITED STATES

Introduction.—In the preceding chapter the course of the governmental aspects of monetary development in the United States was traced briefly from the passage of the act of April, 1792, to the present time. This was deemed advisable in order to explain the existence of various types of government money in our present monetary system—types the existence of which is not understandable when considered apart from the historical forces which brought them into being. In the case of bank notes, the situation is much less complicated. From 1865 until 1914, only one type of such bank credit money—the national bank note—was in circulation in the United States. The Federal Reserve Act (1913) made provision for two additional issues, the Federal reserve bank note and the Federal reserve note, and these two, together with the national bank note, now constitute the bank note currency of the country. Accordingly, in the present chapter, the three existing types of note issue will be treated separately, with the introduction under the head of national bank notes of such historical material as may be necessary for illustrative purposes. Before proceeding on this basis, however, a brief synopsis of the outstanding features of the existing banking system will be presented in order that the discussion of note issues (as well as a later analysis of the control of credit) may be better understood.

The Banking System of the United States

Individual banks.—At the end of 1927 there were 26,191 incorporated banks other than mutual savings banks in the United States.[1] These may be classified into state banks and national banks, according to the jurisdiction under which they have been incorporated, or into member and non-member banks, depending upon whether or not they belong to the Federal reserve system. Although the national institutions are the only individual banks with note issue powers, yet the state banks hold better than 50 per cent of the country's checking deposits and should not be neglected from the currency point of view.[2] Consequently, we shall find the division into member and non-member banks more satisfactory than that based on state and national lines, for the larger and more powerful state institutions, as well as the national banks, belong to the Federal reserve system. In fact, on June 30, 1927, the demand deposits of all member banks amounted to $18.8 billion [3] out of a total of $24.9 billion [4] for all reporting banks in the United States, Alaska, and insular possessions. In other words, over 75 per cent of the demand deposits of the country were held by member banks. It therefore seems legitimate to concentrate our attention upon the member banks of the Federal reserve system in discussing the currency functions of the banks of this country.

Federal reserve banks.—The Federal reserve system, which was established under the Federal Reserve Act of December, 1913, comprises a central banking structure which has been superimposed upon the system of widely scattered individual banks which has been mentioned. This

[1] *Annual Report of the Federal Reserve Board*, 1927, p. 34.

[2] The figures are $9.79 billion for national banks and $11.36 billion for state banks. *Annual Report of the Comptroller of the Currency*, 1927, p. 112.

[3] *Federal Reserve Bulletin*, September, 1927, p. 687.

[4] *Annual Report of the Comptroller of the Currency*, 1927, p. 103.

central banking structure is composed of twelve regional Federal reserve banks, one located in each of twelve established districts. Each reserve bank acts as a central bank for the particular district in which it is located. Acting in this capacity, the reserve banks perform the usual central banking functions. They hold the required legal reserves for member banks in the form of deposit accounts. They make advances to member banks, either by directly discounting the notes of these institutions, or by rediscounting customers' paper held by them. They are allowed to issue two types of bank notes, Federal reserve notes and Federal reserve bank notes. They clear and collect checks and other out-of-town items for member and certain other banks. They buy and sell bills of exchange, United States securities, gold coin and bullion, municipal warrants, and acceptances or debentures of certain agricultural banks in the open market. Aside from the last-mentioned open market operations, their dealings are entirely with banks. They are, therefore, typically bankers' banks, and the relationships which exist between the Federal reserve banks and their members are similar in a great many respects to those which exist between the member banks and their customers.

The Federal reserve banks are owned by the member banks. Each member is compelled by law to subscribe to a specified amount of stock of its district reserve bank. Membership in the system is compulsory for all national banks and is permitted to state banks provided they comply with certain requirements regarding reserves and capitalization. Although the number of state banks which have joined the system amounts to but about 7 per cent of all the state banks in the country, this proportion includes the largest and strongest of the latter institutions as already noted.

The Federal Reserve Board.—The twelve reserve banks, as has been noted, carry on the work of central banks for their respective districts. It is necessary for the maintenance of

a smoothly running banking system for the entire country, however, that the actions of the Federal reserve banks be co-ordinated with respect to those broader aspects of credit policy which affect the entire banking system. Such co-ordination is provided for in the form of a central commission or board of control located at Washington and known as the Federal Reserve Board. This board has the power to designate the kinds of paper, within the terms of the Federal Reserve Act, which the reserve banks may rediscount for their member banks; to require reserve banks with surplus reserves to rediscount the paper of other reserve banks whose reserves are deficient; to pass final approval upon the rediscount rates set by the reserve banks; and to supervise and co-ordinate the open market dealings of the reserve institutions. With these far-reaching powers, the Federal Reserve Board is adequately equipped to control those phases of reserve bank policy which relate to the general credit structure, while the actual business of central banking is carried on by the twelve district institutions.

As a means of contact between the Federal Reserve Board and the reserve banks, the law provides that three out of the nine directors on each reserve bank directorate shall be appointed by the Federal Reserve Board. The other six directors are elected by the member banks of the district, so that actual control really lies with the member banks through their election of the majority of the reserve bank directorate, but the presence of the three appointed members at board meetings assures, at least, a direct means of contact between the Federal Reserve Board at Washington and the management of the reserve banks. One of the three appointed directors acts as Chairman of the Board for the reserve bank and is designated the Federal reserve agent. He is the most important of the appointed directors, and constitutes the mouthpiece of the Federal Reserve Board at the meetings of the boards of directors of each of the district reserve banks. The

Federal reserve agent's department acts as a sort of issue department for the district bank, for the agent is responsible for the distribution of Federal reserve notes to the reserve bank and also has custody over the security which is placed behind these notes. Other means of contact between the reserve banks and the Federal Reserve Board are also provided, but they need not be discussed in detail in a summary of this sort.

To sum up, the banking system of the United States is, at the present time, one consisting of a large number of independent institutions under central banking control. The central banking mechanism consists of a group of twelve regional central banks, instead of one large central institution with branches, but the operations of these regional banks are unified through the control of a central board with respect to all matters of general or nation-wide credit policy. The actual management of each regional bank, however, is left in the hands of local bankers who are best fitted to cope with local banking peculiarities and customs.

Having now briefly sketched the salient characteristics of the banking mechanism of the country, we shall return to a consideration of the three types of bank notes to which this system has given rise.

National Bank Notes

Alterations in issue requirements.—The revised National Bank Act, June 3, 1864, empowered national banks to issue notes secured by bonds of the United States and similar in most other respects to the notes which may be issued by national banks at the present time.[5] Only two amendments to the original requirements need be noted here. (1) The act of 1864 required national banks to maintain substantial

[5] A description of present national bank note issue requirements is given in the first section of the preceding chapter, p. 112.

lawful money reserves against both notes and deposits. The section requiring reserves to be held against circulating notes was repealed by the act of June 20, 1874. Since that date, the five per cent redemption fund at Washington has been the only specific reserve required by law against these notes. (2) Before 1900, notes could be issued only up to 90 per cent of the par value of the bonds which were deposited as security. The act of March 14, 1900, permitted the issuance of notes up to the full par value of the deposited bonds, or up to the market value if the latter should be below par. With these two exceptions, the present-day national bank note issue requirements correspond very closely with those of the original act. Since this is the case, we shall examine the existing national bank note issues with respect to parity, security, and elasticity, and then render a judgment as to their value to the monetary system on the basis of their present desirability coupled with their past performance.

Parity.—No objection can be advanced against national bank notes as far as their parity with standard money is concerned. They are redeemable in lawful money at the issuing bank and at the Treasury in Washington. Since the issuing banks are many in number and are spread over a wide expanse of territory, the provisions mentioned might not always be sufficient to keep the notes at par in all parts of the country, but they are also receivable at par in the payment of taxes and all public dues except duties on imports, and they must be received at par by any national banking association. These valid tender powers, together with the provisions for redemption, have proved adequate to keep national bank notes equal in value to standard money, so that the notes meet the requirement of parity, *per se,* in satisfactory fashion.

Security.—National bank notes are obligations of the United States government and as such fall into the class of

guaranteed issues. This guarantee constitutes the security offered to individual holders of such notes and could scarcely be improved upon from their standpoint. The security to the government consists of the bonds which have been deposited against circulation with the Treasury Department. In case of default by a national bank, the deposited bonds are forfeited to the government and may be sold in the market at auction to reimburse the Treasury for the expense incurred in redeeming the notes of the failed bank. The value of such bonds has always been inflated because of the fact that they have been in great demand by banks wishing to issue notes. It is therefore probable that any widespread failure of national banks, which would cause a considerable proportion of these bonds to be sold on the market, would result in a marked decrease in their market value. Such a catastrophe is highly improbable, but, if it should occur, the government would be further protected by a first lien upon all the remaining assets of the failed banks if it cared to exert its legal right in this connection at the expense of the banks' depositors. It thus appears that both the individual holder of national bank notes and the government are sufficiently protected against loss by the provisions regulating the security to be maintained against national bank note issues.

Elasticity.—With respect to elasticity, our judgment of national bank notes must be decidedly less favorable than in the two previous connections. In the first place, since the notes must be secured by certain limited issues of United States bonds, it follows that the aggregate amount of national bank notes, which cannot exceed the total par value of the bonds available as security, will vary perforce with any variation in the quantity of bonds. At any event, the amount of bonds sets a rigid upper limit to the possible expansion of note issues. Secondly, as regards the issues of individual banks, factors may arise which are wholly unconnected with

the needs of business for hand-to-hand money, and which will cause fluctuations in the amount of such issues. When a bank is subjected to demands for hand-to-hand money, it will meet those demands by paying out either bank notes or lawful money, depending upon which method is the more profitable and the less troublesome. It has been thought frequently that the use of national bank notes instead of lawful money for this purpose is the more profitable procedure for the bank to take because the bank then obtains the interest on the bonds which would not otherwise be obtained, but this is not necessarily the case. Presumably, the national bank notes, when issued, will be paid out to borrowers who want hand-to-hand money. If no notes were issued, the bank would have to meet this demand by paying out lawful money, and would receive merely the interest on the amount thus loaned. The additional profit to be made by issuing national bank notes is the difference between this figure and the interest on the investment in United States bonds, plus interest on the notes loaned, less the tax on circulation, less the expense in connection with engraving, printing, and shipping the notes, less interest on the five per cent redemption fund held in the Treasury.

The bonds at present available as security for circulation all bear two per cent interest. The semi-annual tax on average circulation amounts to one-fourth of one per cent. Total expenses, including sinking fund payments and loss of interest on the redemption fund, average at least another one-fourth of one per cent semi-annually. If the bonds can be purchased at par, the net profit over and above that which would be made from the loan of lawful money would be not more than one per cent per annum, provided all the notes were loaned out to borrowers. As the price of the bonds rises above par, obviously the calculated profit decreases. For example, the net profit on note issues secured by Consols of 1930 during the year 1926 would not have averaged more

than .3 to .4 of one per cent,[6] with the bonds selling at a trifle under 103. If the price of the bonds were to rise above this figure, the extra profit would shortly disappear or be converted into an expense. An increase in the market price of the bonds not only makes it less profitable for the banks to take out new note issues, but also encourages the retirement of certain issues already outstanding. To illustrate, if a bank buys government bonds at 100 to secure note issues, the profit to be made is approximately one per cent per annum. If now the bonds rise in price to 110, the bank will find an incentive to retire its notes and sell the security behind them at a 10-point profit. In so doing, it will, to be sure, no longer obtain the annual one per cent profit from the use of the notes in place of lawful money, but the profit of 10 points at which the bonds are sold will more than make up for the loss of the annual profit on the notes. Other price relations might be given as bearing on the profitability of national bank note issues, but the above are sufficient to show that such issues are governed by the situation in the market for government bonds with the circulation privilege to a greater extent than by the needs of business for hand-to-hand money.

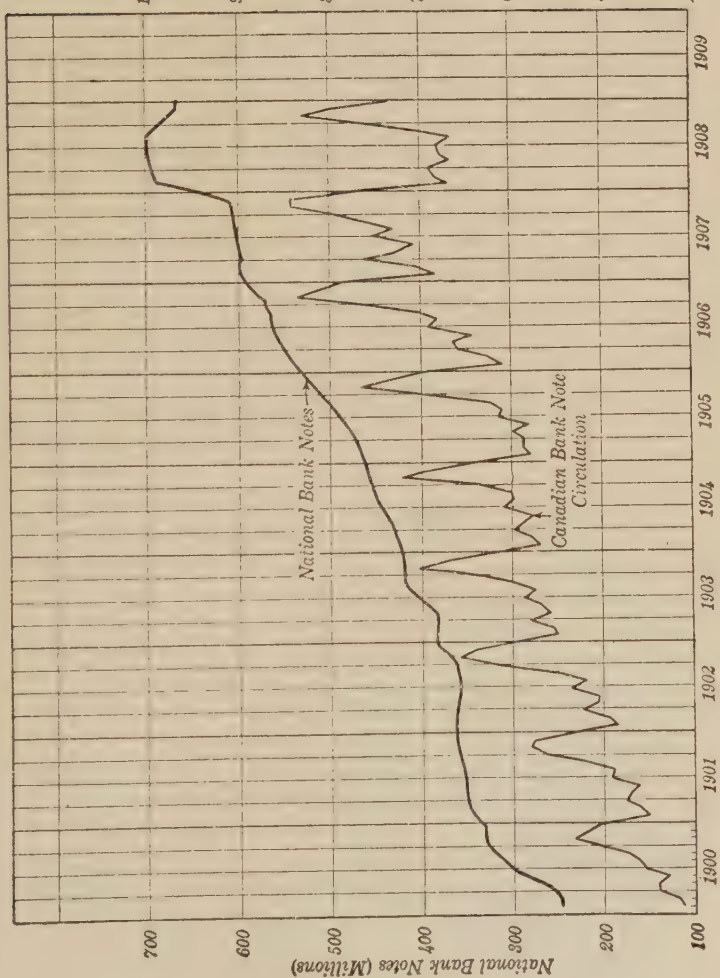
Historical performance and present worth.—Historically, the national bank note can give no satisfactory account of itself as the elastic element in the currency. These notes have shown no evidence of seasonal elasticity such as that possessed by the asset-secured bank notes of the Canadian system. A glance at Chart I, page 143, which depicts the monthly movement of national and Canadian bank note issues from 1900–1908, gives graphic proof of the lack of seasonal elasticity in the national bank note issues. In fact, the red tape surrounding the procuring of additional notes at any time effectively prevented (and still prevents) any rapid expansion to meet seasonal needs. Seasonal ex-

[6] See the *Report of the Comptroller of the Currency*, 1926, p. 170.

pansibility not being in evidence, the question of subsequent contraction did not arise. It may be noted, however, that the requirements surrounding the issuance and retirement of national bank notes provide no legal motive for the banks to send these notes home for redemption, while the large number of issuing banks, together with the limited profit to be obtained by issuing notes, prevents the profit motive from operating on any given bank to send the notes of other banks home for redemption and issue its own notes in place of those returned to the issuing banks.

With regard to longer time movements, the national bank note issues did not expand and contract to meet business needs, but varied with the price of government bonds and the administration of the public debt. There are two outstanding examples of the connection between bank note issues and the administration of the debt in the history of the national banking system. The first occurred in the decade following the year 1880. The Treasury, finding itself in the possession of large surplus revenues in a number of successive years, proceeded to devote them to the redemption of the public debt. By 1887, the portion of the public debt which was redeemable at par had been retired, and the following year the Treasury, as authorized by law, began to buy up the remaining government bonds at the market price. This demand of the Treasury drove up the price of the bonds and presented an alluring opportunity to the national bank managements to retire their circulation and dispose of the bonds at a tremendous profit, an opportunity which they did not resist. "A few years more of wholesale redemptions, under the methods employed in 1888, and the entire debt would be extinguished. This result, except for the waste of public funds involved in the constantly advancing premium, would of itself have been no misfortune. But these very redemptions were extinguishing the bank-note currency, thus actually contracting circulation. . . An

CHART I. National Bank Notes Outstanding and Canadian Bank Note Circulation, 1900–1908.



Source: *Banking Reform*, pp. 130–132.

excessive circulating medium is an undoubted evil; but a law which draws into public vaults, and keeps in idleness, seven per cent of the circulation every year is a source of possible mischief whose evil influence can scarcely be exaggerated." [7] Thus, in the case cited, the reduction of the public debt seriously interfered with the bank note circulation of the country.

The other instance which we have referred to occurred in 1900. The act of March 14, 1900, provided for the funding and refunding of several loans of the national government upon terms less favorable than might have been obtained had not the interests of the national banks interfered. Professor Dewey, in considering the refunding provisions of this act, states: [8] "Certainly the opportunity for payment of the debt was too long deferred, as was subsequently illustrated in purchases of bonds at high premiums. It is fair to conclude that the funding scheme was intended rather to relieve the difficulties of banking than to offer the best possible management of the finances over a long series of years." Referring again to the chart, the rapid increase in national bank note issues after 1900 reflects the effects of the legislation of that year rather than any real increase of demand on the part of business for bank note currency.

With respect to past performance, the national bank notes have proved far from satisfactory. After the amendment of 1874, which relieved the banks of the necessity of keeping sizeable reserves against bank note issues, the quantity of circulating notes was practically unrelated to the amount of available lawful money, being rather strongly influenced by the amount and price of outstanding United States bonds. Since 1914, these issues have ceased to hold a place of commanding importance in our monetary system, and their

[7] Noyes, *Forty Years of American Finance*, p. 126.

[8] *The Financial History of the United States* (New York, 1922), p. 472.

aggregate amount has fluctuated within extremely narrow limits for more than a decade, so that they now form an almost stationary and permanent element in our currency. Aside from the question of expediency, there is no sound reason for their retention in the nation's monetary system, and it is to be hoped that they will eventually be replaced by some other more satisfactory form of credit money.

Federal Reserve Bank Notes

Reason for authorization.—The Federal Reserve Act provided a plan whereby a considerable proportion of the outstanding national bank notes might be permanently retired. After two years from the time of the passage of the act and for twenty years thereafter, national banks wishing to retire their circulation were empowered to sell their bond security for such notes to the Federal reserve banks at par and accrued interest. The Federal reserve banks, as a group, were compelled to purchase the bonds so offered up to a maximum of $25,000,000 per year. The reserve banks, having purchased such bonds, were then permitted to follow either of two courses. Either they could issue Federal reserve bank notes, secured by the purchased bonds and identical in all respects [9] with the national bank notes which had been retired, or they could exchange the two per cent gold bonds which had been purchased from the national banks for one year three per cent gold notes of the United States to the extent of one-half of such bonds, the other half being exchangeable for 30 year three per cent gold bonds, neither the gold notes nor the bonds so obtained to have the circulation privilege.

The intention of this section of the Federal Reserve Act was evidently to provide a means of retiring the national

[9] Except that there was no capital limitation on such issues by reserve banks.

bank notes without undue loss to the issuing banks. The price of the two per cents was artificially inflated by the demands of the national banks requiring them for bank note security, and any blanket removal of the circulation privilege from these bonds would have resulted in a precipitate drop in their market value with consequent heavy loss to the national institutions which held them. The provision for the sale of these bonds to the Federal reserve banks at par, and the subsequent refunding of them into three per cent government obligations was, therefore, fully justified.

For two reasons, however, the provisions of this section were unsatisfactory. In the first place, they were inadequate to accomplish the desired result. If the national banks sold bonds each year to the full $25,000,000 authorized, the continuance of this procedure for the twenty years allowed by the act would serve to eliminate but $500,000,000 out of a total of over $700,000,000 of national bank notes then outstanding. In the second place, instead of requiring the exchange of all two per cents purchased by the reserve banks for the new three per cent obligations, the act permitted the reserve banks, at their discretion, to issue exactly the same type of notes which it was proposed to eliminate.

Present significance.—As a practical matter, the retirement of national bank notes under these provisions of the Federal Reserve Act has been of no consequence, the chief use to which Federal reserve bank notes have been put being their issuance to take the place of the silver certificates which were withdrawn during the War period to permit the breaking up and export of the silver dollars to foreign countries. As far as the Federal reserve banks are concerned, the entire amount of Federal reserve bank notes so issued has been retired, lawful money having been deposited in the amount necessary to cover all these notes which remain outstanding, amounting to slightly over $4,000,000 at the end of 1927.

Federal reserve bank notes are, then, an almost extinct form of bank credit money in the United States at the present time. All attempts to eliminate national bank notes permanently, as originally provided, have apparently been dropped, and the present outlook for the future is for a fairly stationary amount of national bank notes (at least, until the present bonds mature) with Federal reserve bank notes a mere name on the statute books.

Federal Reserve Notes

Parity.—Federal reserve notes were provided for in the Federal Reserve Act in order to eliminate some of the drawbacks with which the use of national bank notes had always been attended. As in the case of national bank notes, we shall consider Federal reserve notes from the point of view of their parity, security, and elasticity.

Federal reserve notes are entirely satisfactory as regards parity. They are the obligations of the issuing banks and of the United States government, and are "receivable by all national and member banks and Federal reserve banks and for all taxes, customs, and other public dues. They shall be redeemed in gold on demand at the Treasury . . . , or in gold or lawful money at any Federal reserve bank." [10] The above provisions of the Federal Reserve Act are ample to secure the maintenance of parity between Federal reserve notes and standard money. Being redeemable at the Treasury or at any Federal reserve bank, there are thirteen redemption agencies in all, located in thirteen important centers throughout the entire country. In addition, the fact that these notes are obligations of the United States and may be used in a considerable variety of payments as valid tender adds to the surety that they will not fail to be maintained at par.

[10] Federal Reserve Act, Section 16.

Security.—In designating the security to be held behind Federal reserve notes, the Federal Reserve Act marked the point of departure from the long established custom of bond secured bank notes in this country. Quoting again from the act:[11] "Any Federal reserve bank may make application to the local Federal reserve agent for such amount of the Federal reserve notes hereinbefore provided for as it may require. Such application shall be accompanied with a tender to the local Federal reserve agent of collateral in amount equal to the sum of the Federal reserve notes thus applied for and issued pursuant to such application. The collateral security thus offered shall be notes, drafts, bills of exchange, or acceptances acquired under the provisions of section thirteen of this act, or bills of exchange indorsed by a member bank of any Federal reserve district and purchased under the provisions of section fourteen of this act, or bankers' acceptances . . . or gold or gold certificates; but in no event shall such collateral security, whether gold, gold certificates, or eligible paper, be less than the amount of Federal reserve notes applied for." This is usually summed up more succinctly by stating that the required security consists of commercial paper or gold to the full amount of the notes issued. Federal reserve notes, being the obligations of the United States, are guaranteed notes and it is this guarantee which, as in the case of national bank notes, constitutes the real security to the individual noteholder. As such, it is of unquestioned soundness. The commercial paper or gold then acts as security to the government in case of failure of a Federal reserve bank and, in addition, the notes constitute a first and paramount lien on all the assets of the issuing bank, so that the government is amply protected.

Elasticity.—From the standpoint of parity and of security to the individual noteholder, Federal reserve notes are neither much better nor much worse than national bank notes

[11] *Ibid.*

or Federal reserve bank notes. As regards elasticity, however, these notes are decidedly superior to the two types of bond secured issues. We shall therefore discuss this characteristic of Federal reserve notes in some detail.

Expansibility.—Ability to expand note issues depends upon the type of the collateral required and the size of the reserve which must be, or as a matter of practice is, maintained for the redemption of such issues. The collateral behind Federal reserve notes *may* be commercial paper, and, as already explained, such collateral expands with the business need for additional notes, so that there is no danger that the available collateral will ever prove inadequate as was sometimes the case with the national bank notes. As for reserves, the Federal reserve banks are required to maintain reserves equal to 40 per cent of the Federal reserve notes in circulation. This means that expansion is thereby limited to two and one-half times the amount of gold available for note reserves. This gives a possibility of expansion which is quite adequate to meet any normally recurring demands of business for additional hand-to-hand currency. In order to provide for the redemption of the notes in Washington, a portion of this 40 per cent reserve is kept in the Treasury as a redemption fund, but this in no way interferes with the degree of expansibility already mentioned.

Contractibility.—The Federal Reserve Act also includes provisions which are intended to bring about the contraction of Federal reserve note issues after the need for them has passed. The notes, although demand liabilities of the reserve banks and fundamentally the same in nature as their deposits, can not be counted by *member banks* as part of their legal, or required, reserves, the law requiring all the legal reserves of member banks to be in the form of deposits with the reserve banks. Thus the member banks, having received Federal reserve notes on deposit from their customers, will be inclined to send them in to the district reserve bank for

credit to their reserve accounts. Even if their reserve accounts are sufficiently large, it is probable that the member banks find it desirable to send the notes to the reserve banks for credit, since the latter institutions pay all expenses connected with such shipments of notes, while if a member bank wished to send some of its surplus funds to a correspondent bank in New York, say, to be loaned out in the call loan market, it would have to pay the shipping expenses if notes were used for this purpose. And, even aside from the expense of shipping the notes, it is much more convenient for a member bank to write a check against its reserve account and mail that to its New York correspondent (or transfer the desired amount of funds by wire) and send the notes in to the district reserve bank, which is usually nearer and more convenient to ship to. If bonds or other securities are purchased with surplus funds, the same line of reasoning prevails. It is more convenient to pay for such purchases with drafts than to try to use Federal reserve notes for that purpose.

But there is another motive, and a more powerful one, which impels the member banks to send Federal reserve notes in to the reserve bank, and that is *the desire on their part to extinguish their indebtedness at the reserve institution.* When a member bank wishes to obtain Federal reserve notes, it normally rediscounts some of its commercial paper with the reserve bank and takes the proceeds of the loan in the form of such notes. This is almost certain to be the case in periods of business prosperity or seasonal activity when Federal reserve note issues are expanding fairly rapidly. The member bank in this way incurs a debt at the reserve bank upon which it must pay interest, and it is decidedly profitable to member banks to retire this indebtedness as soon as it obtains idle funds which may be used for this purpose. Therefore, when a period of expansion has passed, the Federal reserve notes begin to accumulate in

the hands of the member banks, and these institutions will send in all such surplus notes to the reserve bank to pay off their obligations and relieve themselves of the attendant interest burden.

It should now be clear that it is to the interest of member banks to send surplus notes in to the reserve banks for credit. But there are twelve reserve institutions and some of the notes which any one reserve bank will receive from its members will be the notes of one or more of the other eleven district banks. In order to make sure that notes of other reserve banks will be sent back to the issuing bank for redemption, and so not circulate indefinitely in a district far removed from that in which the note was issued, the Federal Reserve Act provides that a 10 per cent tax be levied against any reserve bank on any such notes of another reserve institution as it may pay out over its counter. Further, no reserve bank is allowed to count the notes of another reserve bank as part of its legal reserves, so that there is no question but that all Federal reserve notes of other banks received by a given reserve bank will immediately be sent back to the original or issuing banks for redemption.

Alteration in issue requirements.—At the time of the passage of the Federal Reserve Act, it was intended that Federal reserve notes should be a purely elastic type of currency based on commercial paper as security. Consequently, the original act provided that commercial paper only might be used as collateral for Federal reserve notes, and that the issuing bank should, in addition, keep a 40 per cent gold reserve in its own vaults. As a result of the desire to concentrate gold in the vaults of the Federal reserve banks during the War period, an amendment to the act, in 1917, provided that gold, as well as commercial paper, might be used as collateral for such note issues, and that any gold so used as collateral might be counted as part of the 40 per cent required gold reserve. This meant that Federal reserve

notes might be issued against 100 per cent of gold collateral, in which case they would become practically gold certificates and merely displace that amount of standard money, thus losing the quality of elasticity.

As the amendment of 1917 has actually worked out, a portion (sometimes practically all) of the outstanding Federal reserve notes have been backed by gold as collateral and so have not had the elastic quality originally intended. This does not mean, however, that the elasticity of Federal reserve note issues as a whole has been destroyed. An illustration will perhaps best clear up this point. A member bank in a given district deposits, let us say, $100,000 in gold with the reserve bank of its district and receives in exchange $100,000 of Federal reserve notes, which it puts into circulation as its customers demand hand-to-hand money or holds in its vaults as till money.[12] The reserve bank deposits this full $100,000 in gold with the local Federal reserve agent (who issues the notes to the reserve bank upon receipt of the required collateral) as collateral for the Federal reserve notes. These notes are virtually gold certificates, and the reserve bank is required to keep no additional gold reserve against them. They may stay in circulation indefinitely as part of the permanent circulating medium of the country as far as the motive for retiring them is concerned, since they have been obtained in exchange for gold and not by borrowing at the reserve bank. Suppose now, however, that other member banks of the district find themselves in need of more hand-to-hand money, and so rediscount commercial paper with the reserve bank to the extent of $150,000 and take the proceeds in the form of Federal reserve notes. The reserve bank can now turn over to the Federal reserve agent the $150,000 of commercial paper as collateral security for that amount of notes which will be

[12] This was a common procedure in the period following the passage of the amendment in 1917.

paid out to the borrowing member banks. The total of notes in circulation will then be $250,000, secured by $100,000 (or 40 per cent) of gold and $150,000 (or 60 per cent) of commercial paper. The latter $150,000 of notes was obtained by borrowing on the part of member banks and is subject to all the forces making for contraction which have been mentioned.

Federal reserve note issues, then, may be said to be made up of two sections or groups: that secured by gold which is inelastic and forms a part of the permanent circulation, and that secured by commercial paper which is elastic and forms the temporary part of our bank note currency, i.e., that part which has resulted from temporary demands to meet seasonal or other business needs for hand-to-hand money. It goes without saying that it is quite impossible to distinguish any one Federal reserve note from another as regards the security behind it. Nevertheless, as long as some commercial paper is kept with the Federal reserve agent as security for Federal reserve notes, it remains true that a portion of these notes equal to the commercial paper so held may be considered as having the quality of elasticity, while the remaining portion—equal to the gold security—is not elastic.

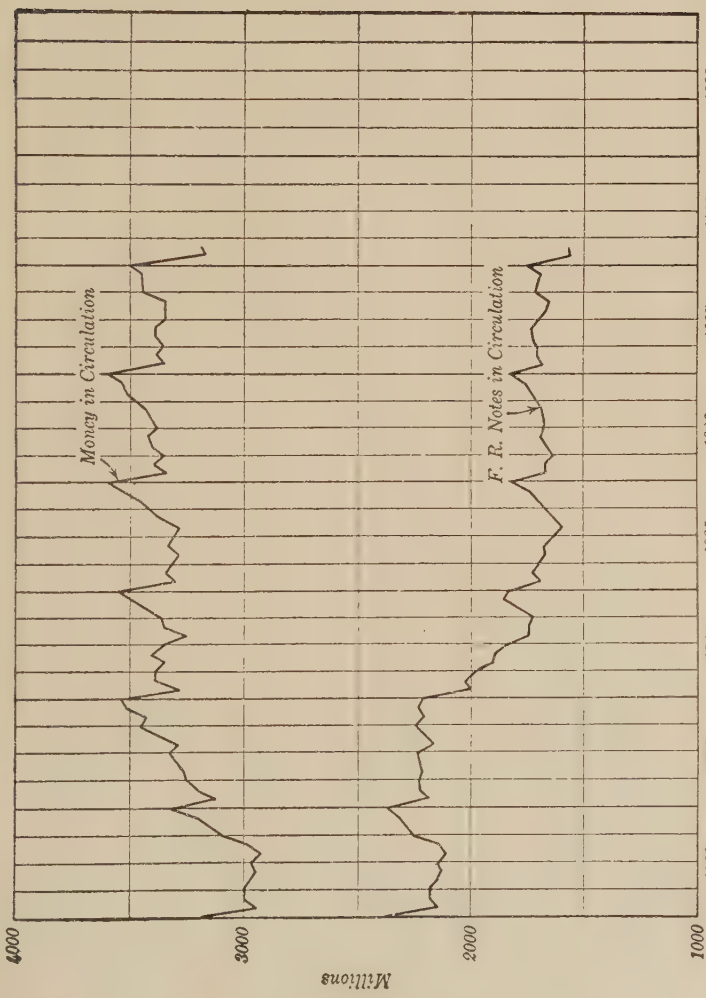
Emergency elasticity.—Since the quality of elasticity is present, or may be present, in at least a part of the Federal reserve note issues, these notes may be said to fulfill satisfactorily the third requirement of a good system of note issue as far as ordinary elasticity is concerned. The Federal Reserve Act also makes provision for emergency elasticity. The Federal Reserve Board is given the authority to suspend any reserve requirement of the act for certain specified periods if it is deemed necessary, provided that if the reserve against Federal reserve notes falls below 40 per cent, a graduated tax—to increase with the size of the deficiency—be levied against the deficiency below this figure. This is

avowedly an emergency measure. The Federal Reserve Board has the power to allow practically any degree of expansion which conditions may demand, while the graduated tax makes such expansion increasingly unprofitable and assures a rapid contraction of note issues as soon as the emergency has passed.

Monetary elasticity and the Federal reserve system.— Before leaving the subject of bank notes, some qualification of the discussion of the preceding section is necessary lest it be inferred that Federal reserve notes furnish the only elastic element in the country's hand-to-hand currency at the present time. As a matter of fact, such is far from being the case, as we shall attempt to show. In discussing the elasticity of Federal reserve notes, it was assumed that such notes were paid out to member banks whenever the latter borrowed at the reserve banks for the purpose of obtaining hand-to-hand money. Suppose, however, that the reserve banks, instead of meeting this demand for hand-to-hand money on the part of members with Federal reserve notes, pay out gold certificates to the member banks when the latter rediscount commercial paper in order to obtain hand-to-hand money. There would then be just as much incentive to the member banks to pay back these loans as though they had received Federal reserve notes from the reserve bank instead of gold certificates. Consequently, as the gold certificates begin to accumulate in the hands of the member banks, after the need for them in circulation has passed, these institutions will send them in to the reserve banks to decrease their indebtedness in exactly the same fashion that they would send in Federal reserve notes under the conditions depicted in the preceding section.

As a matter of fact, because of their extremely large gold reserves, the Federal reserve banks have followed the policy of paying out gold certificates and other forms of lawful money during the past few years to meet the demands of

CHART II. Federal Reserve Notes in Circulation and Total Money in Circulation in the United States, 1922–1928.



Source: *Federal Reserve Bulletin*, March, 1928.

ALLEGHENY COLLEGE LIBRARY

their members for hand-to-hand money, with the result that lawful money in circulation has attained a degree of elasticity which closely approaches that of any asset-secured bank note issue. What has happened is that the Federal reserve banks have become depositories for practically all of the surplus hand-to-hand money of the country, so that when more money is needed to meet business needs, it must be obtained as a rule from the Federal reserve banks by way of loan. The resulting interest charge makes it profitable for member banks to use *any* surplus hand-to-hand money (whether it be gold certificates, national bank notes, silver certificates, or Federal reserve notes) which may accumulate in their vaults to pay off some of their indebtedness at the reserve banks and, incidentally, reduce the amount of hand-to-hand money in actual circulation. The effect of this policy on the part of the reserve banks is clearly depicted in the accompanying chart, which shows the circulation by months of Federal reserve notes and of all hand-to-hand money from December, 1921, to February, 1928. The upper line (all money in circulation) clearly exhibits a more pronounced seasonal movement than does that for Federal reserve notes alone, and seems to demonstrate fairly conclusively that an elastic system of note issue is not essential to general monetary elasticity in the United States. This conclusion is reenforced by the fact that the great bulk of the Federal reserve notes in circulation during the period shown on the chart were secured by gold rather than commercial paper.

The utility of Federal reserve notes.—The conclusion just reached would seem to indicate that the elaborate provisions of the Federal Reserve Act with respect to an elastic bank note currency were unnecessary. This is not the case, however. It happens that the conditions resulting from the Great War have brought about a large increase in the gold holdings of the United States and that the surplus gold has found its way into the Federal reserve banks. As long as

the reserve banks retain a large surplus of gold above their legal reserve requirements, it will be possible to meet demands for hand-to-hand money by paying out gold certificates with the results just noted. But, should a redistribution of this gold stock take place among the nations of the world, as seems likely to happen, the reserve banks will not be able to continue the policy of paying out gold to meet circulation demands, but will rather find it highly convenient, perhaps necessary, to conserve their gold reserve and meets demands for hand-to-hand money with Federal reserve notes which may be secured up to 60 per cent of their value with commercial paper. At the close of the year 1927, there was a total of $2,837,000,000 in circulation in the United States in the form of gold certificates and Federal reserve notes which was backed by a total of $2,543,000,000 in gold in the Treasury and with Federal reserve agents. If Federal reserve notes, *secured by gold only up to the required 40 per cent,* were to be substituted for the aforementioned $2,837,000,000 of hand-to-hand money, the amount of gold which would be required behind such notes would be approximately $1,135,000,000.[13] It must be comforting to the reserve bank authorities, to say the least, to realize that present demands for hand-to-hand money could be met with the use of nearly $1,500,000,000 less in gold than is now being used for that purpose. The utility of the Federal reserve note, as it exists at present, lies in its ability to expand, *if necessary,* to two and one-half times the amount of gold available as security.[14]

[13] The figures for gold certificates and Federal reserve notes in circulation are to be found in the *Federal Reserve Bulletin,* March, 1928, p. 176. Gold behind Federal reserve notes in circulation and outstanding at the end of December, 1927, is given in the January, 1928, *Bulletin,* Federal reserve agents' account, p. 92.

[14] See Burgess, *The Reserve Banks and the Money Market,* Chapter IV, for a corresponding description, with excellent charts and diagrams, of the elasticity of the currency under the Federal reserve system. The same point is brought out with somewhat less emphasis in Goldenweiser, *The Federal Reserve System in Operation,* pp. 69–71.

QUESTIONS FOR STUDY

1. Describe briefly the main features of the present banking structure in the United States.

2. Discuss national bank notes from the standpoint of (a) parity, (b) security, and (c) elasticity.

3. "The disadvantages of the national bank note issues were of more importance before the establishment of the Federal reserve system than they have been since." Defend this statement.

4. How do you explain the inclusion in the Federal Reserve Act of a provision for the issuance of Federal reserve bank notes? Was this provision satisfactory in view of the purpose it was intended to accomplish?

5. Compare Federal reserve notes with national bank notes as regards parity, security, and elasticity.

6. To what extent is the expansibility of Federal reserve note issues limited by (a) reserve requirements, and (b) security requirements?

7. What provisions of the law are designed to secure contractibility of Federal reserve note issues? Show that the most powerful incentive to send the notes in to the Federal reserve banks for redemption arises out of the manner in which the bulk of these notes get into circulation.

8. "Under the Federal Reserve Act, there is ample provision to secure emergency elasticity of Federal reserve note issues." Explain and defend.

9. How did the amendment to the Federal Reserve Act in 1917 affect the elasticity of Federal reserve note issues?

10. It has been stated that Federal reserve notes constitute the only elastic element (aside from the check currency) in our monetary system. Show that, under the operation of the Federal reserve system, all forms of hand-to-hand money have acquired a considerable degree of elasticity.

11. In view of the preceding question, what is the importance of the provision for an elastic system of note issue in the United States?

BIBLIOGRAPHICAL NOTE

The present note will suffice for this and the following chapter. Discussions of the defects of national bank note issues abound in works on money and banking of American origin. Space permits the mention of only a few of these. C. F. Dunbar, *The Theory and History of Banking,* Chapter XI, contains a concise but clear account of the defects of the national banking system. E. W. Kem-

merer, *The A B C of the Federal Reserve System* (Princeton, Fifth Edition, 1922), gives an accurate account of the defects of the national bank notes as well as a clear and concise description of the elastic qualities pertaining to Federal reserve note issues. C. A. Phillips, *Readings in Money and Banking,* pp. 682–693, contains some excerpts from articles by F. R. Fairchild and W. H. Lyon on the defects of national bank notes which are well worth reading. O. M. W. Sprague, *Banking Reform in the United States* (Harvard, 1911) realizes the defects of the national banking system, but minimizes the evil effects of the inelastic national bank notes. R. B. Westerfield, *Banking Principles and Practice* (New York, Revised Printing, 1928), Chapter XVII, describes the technique of issuing and retiring notes and discusses both the advantages and disadvantages of national bank note issues. In addition to the sources cited, a book, *Banking Reform* (Chicago, 1912), published by the National Citizens' League, thoroughly discusses the inadequacies of this type of bank note issues.

Turning to the note issues of the Federal reserve banks, aside from Kemmerer's book already mentioned, W. R. Burgess, *The Reserve Banks and the Money Market* (New York, 1927), Chapter IV, emphasizes the present elasticity of all forms of hand-to-hand money under the operation of the Federal reserve system. The discussion in this chapter (as in the entire book) is made particularly lucid by the introduction of charts and diagrams. A thorough discussion of Federal reserve notes is to be found in E. A. Goldenweiser, *The Federal Reserve System in Operation* (New York, 1925). A sound analysis of Federal reserve note issues is also available in H. L. Reed, *The Development of Federal Reserve Policy* (Boston, 1922). H. P. Willis, *The Federal Reserve System* (New York, 1923), is a massive volume containing much interesting material and analysis. Lastly, H. P. Willis and W. H. Steiner, *Federal Reserve Banking Practice* (New York, 1926), is a veritable encyclopedia of factual information, while the *Annual Reports of the Federal Reserve Board* and the *Federal Reserve Bulletin* also contain a wealth of factual and statistical material.

The methods of effecting the clearing and collection of checks on a national scale under the Federal reserve system are described in all of the volumes cited in the preceding paragraph. In addition to these the Federal Reserve Bank of Richmond, *Letters to College Classes in Economics and Banking,* published at irregular intervals by the Richmond bank, should be mentioned. These letters describe the practical operation of the Federal reserve system and contain much useful information of an authentic nature. The nature and functions of the local clearing house and of the clearing process are considered in more or less detail in practically every book on money and banking. Many of these works have already been

mentioned in previous notes and it is not necessary to repeat them.

For years, the standard work on the subject was J. G. Cannon, *Clearing Houses* (National Monetary Commission Report, Washington, 1910). More up-to-date, however, is W. E. Spahr, *The Clearing and Collection of Checks* (New York, 1926). This is an exhaustive and careful study which should be read by everyone who is particularly interested in this subject.

CHAPTER VIII

THE USE OF CHECK CURRENCY IN THE UNITED STATES

The importance of the check currency.—There is probably no country in the world in which the ordinary bank check is used as a means of payment—at least by individuals—to the extent that it is so used in the United States. In his report to the National Monetary Commission, Dr. David Kinley estimated that approximately 85 per cent of all money payments in the United States were made by means of checks.[1] Professor Fisher places the figure as high as 90 per cent.[2] In a recent comment on the reliability of these estimates, Mr. Carl Snyder of the Federal Reserve Bank of New York makes the following statement:[3]

> This [90 per cent] seems at first sight a very high proportion, but even if all retail purchases and wage payments were in cash these would not represent above one-eighth of the total money transactions of the nation. Of course, there are other cash transactions, but, as compared with the astounding volume of check transactions, these are almost negligible.
>
> We have made an estimate from the available figures that the total of all checks drawn on all the banks of the country was in 1927 over 750 billions of dollars. The actual volume of checks reported in 1926 was 606 billion dollars; and this as nearly as can be estimated, is something like 87 per cent of all checks debited to final account. . . .
>
> The total of currency in actual circulation outside the banks is

[1] *The Use of Credit Instruments in Payments in the United States*, Report of the National Monetary Commission (Washington, 1910).

[2] *The Purchasing Power of Money* (New York, 1911), p. 318.

[3] *The Review of Economic Statistics*, February, 1928, pp. 40–41.

now probably less than 3½ billions of dollars (the figures published by the Treasury do not allow for losses by fire, burial and the like, and include, as well, a hypothetical 300 millions or so of gold which quite certainly is not in "circulation").

The estimated total of active demand deposits subject to check is around 25 billions of dollars, or over seven times the estimated amount of money in circulation. The "velocity" or average rate of turnover of the whole volume of these active deposits can only be approximated, but we have made estimates in the Reports Department of the Federal Reserve Bank of New York, that this average probably ranges from 25 to 30 times per year, with an estimate for 1927 of about 30 times. No kind of estimate is available for the actual rate of turnover of currency in circulation, but it seems doubtful if the whole of it turns over as fast as the average of demand deposits.

In view of these computations, it would seem that the estimate that cash transactions do not much exceed one-eighth of the total money transactions of the country is well grounded. Further, a variety of considerations would suggest that this ratio does not change greatly from year to year, save that the proportion of check transactions grows slightly greater.

In the light of all the evidence, both past and present, it is clear that the check currency constitutes an element of outstanding importance in our monetary system.

Elasticity in the check currency.—In view of the dominating position of the check currency in the monetary system of this country, it is more important that this means of payment should enjoy a high degree of elasticity than that the latter quality should be contained in the media which make up the hand-to-hand circulation of the country. It has been well stated by Professor Sprague that "in those countries in which checks have become a well-nigh universal medium of payment, bank-notes, though still a convenient instrument of credit, exercise an insignificant influence upon its (the credit machinery's) organization." [4] It is in the very nature of the check currency to be elastic, but this

[4] *Banking Reform in the United States* (Harvard University, 1911), p. 117.

characteristic may be strengthened and the degree of elasticity increased by means of a unified control of the gold reserves of the country and provision for a rapid and efficient system of clearing checks for all the banks of the country.

Defects of the old system in the United States.—Prior to the passage of the Federal Reserve Act, the banking system of the United States was deficient in both these respects. First, banking reserves were widely scattered among many thousands of individual banks throughout the country and the banks of the system were subject to unduly rigid reserve requirements which prevented them from making the proper use of their reserves to meet demands of customers in time of stress. While many banks retained a part of their reserves in the form of deposit balances with the banks of New York City, the latter institutions were not central banks and could not profitably retain sufficiently large reserves against such balances to meet the demands of the interior bank in time of strain. This difficulty was also aggravated by the rigid reserve requirements which have been referred to. In short, although the banking reserves of the country were usually adequate as regards their absolute size, they were not properly organized to meet the credit demands of the country in satisfactory fashion. Secondly, while the local clearing houses operated with a high degree of efficiency, the lack of centralized agency for the clearing and collection of out-of-town items prevented the development of an efficient clearing system for the country as a whole.

With this passing mention of the unsatisfactory situation prior to 1914, we shall proceed to a more detailed discussion of reserve organization and clearing methods under the Federal reserve system.

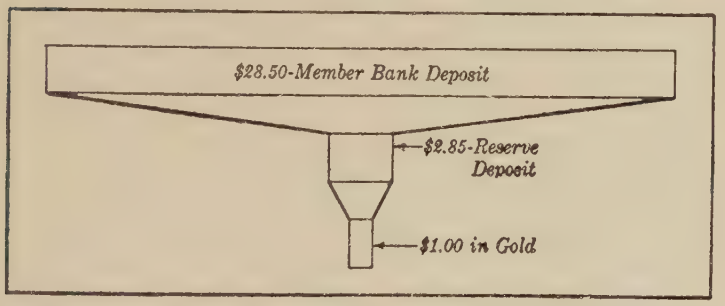
Present organization of reserves.—Under the banking system as it is now organized the defective elements which have

been noted have been eliminated. The existence of the twelve regional reserve banks under the general supervision of the Federal Reserve Board permits a unified control of banking reserves which was not possible under the old system. With the existing credit organization, the Federal reserve banks hold the great bulk of the ultimate (gold) banking reserves of the country, while the member banks are required to keep their entire legal reserves in the form of deposit accounts with the reserve banks. More specifically, each member bank is required by law to keep a reserve deposit (with the Federal reserve bank) of 7, 10, or 13 per cent of its net demand deposits, the size of the reserve required depending upon the location of the member bank. For all member banks, then, the average required reserve would be close to 10 per cent. The law requires each Federal reserve bank to keep a reserve of gold or lawful money amounting to at least 35 per cent of these member bank deposits. Under these arrangements, one dollar in gold in the vaults of the reserve banks may act as reserve for $\$2.857\left(\$1 \times \frac{100}{35}\right)$ of member bank reserve deposits, which may in turn act as a reserve against approximately $28.57 of demand deposits held by member banks. This is not meant to indicate that this degree of expansion is actually reached in ordinary times, but it does show the upper limit of *possible* expansion of the check currency which may be attained before the legal limit is set for required reserves is reached. Even greater expansion is possible if deemed necessary in time of emergency, since the Federal Reserve Board has the power to suspend legal reserve requirements temporarily if the occasion should demand it, providing that a fine is imposed to insure subsequent contraction when the emergency has passed.

The degree of *possible* expansion of the check currency on

the basis of one dollar in the vaults of the Federal reserve banks is shown graphically in the following diagram:

CHART III. Possible Expansion of the Check Currency Under the Federal Reserve System.



It is clear that this permits a very large expansion of the check currency on a comparatively small gold base. Plainly, there is no lack of expansibility on the part of this element in our currency. Provision for such a high degree of expansion is made possible *with safety* only by placing the banking reserves of the country under centralized control. In the United States unified control of reserves has been accomplished by giving the Federal Reserve Board the right to require one reserve bank which may have a surplus reserve to rediscount the paper of another reserve bank whose legal reserves are deficient, thus effecting a transfer of reserves from the former to the latter. In this way the most efficient utilization of the banking reserves of the entire country has been attained.

The relative size of the ultimate gold reserve which it is necessary for a country to keep as a basis for its check currency depends in considerable measure upon the degree to which the checks of different banks are cleared, i.e., cancelled against one another. If a comprehensive and efficient system of clearing is in force, a very significant economy

of gold or lawful money reserves may be effected. An efficient clearing system also has the advantage of effecting a prompt presentation of checks to the drawee bank for payment with a consequent restriction on the undue expansion of the check currency by any individual bank. It is therefore pertinent to describe at some length the present arrangements for the clearing and collection of checks within the United States.

The clearing and collection of checks.—The local exchange of checks and drafts in the United States is accomplished through the established local clearing houses to which the bulk of the commercial banks belong, such associations of banks for clearing purposes being found in practically all communities which have several or many banks. Certain banking establishments in any given town or city may not have enough exchange business with the remaining banks to warrant the expenditure requisite to full membership in the local clearing house association. Strictly savings institutions with no commercial business and no checking accounts furnish examples of this type. Such banks would find some checks on other banks of the city among their deposits, however, so that they frequently have arrangements with some member of the clearing house for collecting these items. There are also the smaller commercial institutions which may find it desirable and economical to clear their checks through one of the larger clearing house members. The nonmember clearing banks, i.e., those not belonging to the clearing house but clearing through a member, may thus be considered as identical with the institutions through which they clear so far as their effect upon the clearing process is concerned.

The principle on which the clearing house operates has already been considered and requires no repetition at this point, but as regards current practice in the payment of clearing house balances, it should be noted that such balances

are usually not paid in cash or lawful money at the present time, settlement being made instead by draft on either the district reserve bank or some correspondent bank in a financial center. In the larger cities, where practically all the members of the clearing house belong to the Federal reserve system and maintain reserve deposit accounts with the district reserve bank, the payment of clearing house balances by means of drafts or orders on the reserve bank is a simple and convenient method to use, for the accounts of the paying banks (banks with adverse balances) will simply be debited at the reserve bank for the amounts which are owed, while the accounts of the banks with favorable balances will be appropriately credited. At all events, the use of drafts in the settlement of clearing house balances avoids the necessity of transferring cash from one bank to another and brings about a more complete utilization of deposit credits as money than would otherwise be possible.

So much for the clearing of local items. But many of the checks received on deposit by any particular bank will be drawn on banks operating in other localities. In any given business period, as a week, a month, or a year, the banks of one community will receive checks drawn on banks in other communities which could be used to offset, entirely or in part, the checks which the latter banks have accumulated against them. To do this, however, some clearing system must be available which covers a wide enough area to include all the banks in question. Such a system has been developed by the Federal reserve banks and the Federal Reserve Board for the banks of the United States. In examining the working of this system, it will be desirable to distinguish between two aspects of the procedure which is employed, as follows: (1) the clearing and collection of checks and items within a given Federal reserve district, and (2) the collection and clearing of inter-district items.

(1) The collection and clearing of intra-district items.— The procedure in the case of intra-district items is relatively simple and can best be described by the use of an illustration. A member bank in, say, Akron, Ohio, receives on deposit a check for $1,000 drawn on another member bank in Ashtabula, Ohio. The Akron bank will send this check to the Federal Reserve Bank of Cleveland, whereupon the latter institution will give the Akron bank a deferred credit for the amount of the check. The Cleveland reserve bank then forwards the check to the member bank in Ashtabula. If the drawer of the check has sufficient funds on deposit with the Ashtabula bank to cover it, the latter institution will honor the check, debiting the drawer's account $1,000. The Federal Reserve Bank of Cleveland will then debit the reserve account of the Ashtabula bank $1,000, and transfer $1,000 from a deferred to a realized credit to the reserve account of the bank in Akron.[5]

No clearing is involved in the single transaction described above, for there has been no offsetting and cancellation of conflicting claims. But the Akron member bank, acting in the fashion outlined above, will forward all checks against all other banks in the district to the reserve bank at Cleveland for collection. All the other banks will, in turn, send in whatever checks they have received against the Akron bank for the same purpose. The result will be, in the end, that the reserve account of the Akron bank will have been credited by an amount equal to the sum of all the checks it has received against other banks in the district, and debited by the amount of the checks which the other banks of the district have received against it. In this fashion a clearing

[5] Both this example and the following one which illustrates an inter-district collection show the procedure involved in the typical case. Certain time-saving devices have been instituted in certain districts, and some member banks send their checks to a correspondent for collection instead of sending them directly to the Federal reserve bank, but, on the whole, the illustrations given exemplify the most usual procedure for the country as a whole.

of all out-of-town checks within the district takes place, and the Akron bank will have a net debit or credit to its reserve account, depending upon whether the sum of the claims against it exceeds the sum of the claims it has against the other district banks, or vice versa.

(2) The collection and clearing of inter-district items.— The clearing of inter-district items is somewhat more complicated. Suppose a member bank in Cleveland receives a check drawn on a Boston bank. The Cleveland member bank will send the check to the Federal Reserve Bank of Cleveland for collection and will receive a deferred credit at the reserve bank for the amount of the check. The Cleveland reserve bank will then forward the check to the Federal Reserve Bank of Boston, which institution will collect it, either through the local clearing house or directly from the Boston bank on which it is drawn. The Federal Reserve Bank of Boston, having collected the check from the local member institution, debits the reserve account of the latter for the amount of the check and also enters a credit in favor of the Federal Reserve Bank of Cleveland for a like amount. As soon as the Cleveland reserve bank has allowed enough time to elapse to permit the collection of the check in Boston, it will transfer the original deferred credit to a realized credit to the reserve account of the Cleveland member.

Again, the example given illustrates a collection process in which no clearing of checks is involved. It has, however, brought us to the point where the process of clearing inter-district items can be easily understood. After the Federal Reserve Bank of Boston had collected the check for the Cleveland reserve bank (by debiting the reserve account of the Boston member bank), it owed the amount of the check to the Cleveland institution. It should be clear that, in the course of the day's business, the Federal Reserve Bank of Boston will collect checks in similar fashion not only for the Cleveland reserve bank, but for all the other reserve

institutions. Similarly, the other reserve banks will collect items for the Federal Reserve Bank of Boston. Each reserve bank might effect a separate cancellation of items with each other reserve bank, balances being shipped in cash from one institution to another, but this would require many shipments of lawful money which could be avoided by resort to a central clearing agency. Such an agency has been established at Washington by the Federal Reserve Board. Each day every Federal reserve bank wires in to the agent of the Federal Reserve Board at Washington the total amounts which it has due to every other Federal reserve bank. The clearing agent then sets the amount each Federal reserve bank owes to all of the others over against the amount which all of the others owe to it, a process which is identical with that performed by the local clearing house, and which results in favorable balances for some of the reserve banks and unfavorable balances for others. The results of the clearing operation are wired to the respective reserve banks and they can then adjust their reserve positions.

Of course, the actual payment of adverse clearing balances might be effected by daily shipments from the banks with adverse balances to those with favorable balances, but this would result in continual shipments from one reserve bank to another, many of which would cancel one another over a somewhat extended period of time. This possible multiplicity of gold shipments has been permanently avoided by the establishment of a *Gold Settlement Fund* in Washington. This consists, as its name indicates, of a fund of gold contributed by the twelve reserve banks and maintained at Washington for the purpose of settling inter-reserve bank transactions. This fund constitutes a part of the reserves of the several reserve banks and now amounts to about $700,000,000. It is used largely in the settlement of daily clearing balances, or other transfers from one reserve bank to another. The fund remains practically intact in the vaults

of the Treasury at Washington, while re-distribution of the ownership of the gold therein is made by book transfers. Thus, at the end of the day's clearing operation, the clearing agent debits the accounts in the Gold Settlement Fund of the reserve banks with unfavorable balances at the clearing and credits the accounts of those with favorable balances. The favorable and unfavorable balances themselves tend to offset each other over a period of time, so that, once a reserve bank has deposited a substantial amount of gold in the fund, it no longer has to worry about the necessity of making frequent gold shipments to the fund itself or to other reserve banks.

The impression has been received, perhaps, that the clearing and collection system described applies only to member banks. This is not strictly the case. The Federal reserve banks will collect checks, for members and clearing members,[6] on any bank in the country which will remit at par to the Federal reserve bank. In remitting for checks so presented, the non-member bank which is also not a clearing member may make payment in lawful money, bank notes, or a draft on an acceptable banking institution. In so far as the last-named method is used, deposit credit is made use of as a substitute for lawful money or bank notes, and the greater convenience of this method has resulted in its widespread adoption in this connection.

The clearing and collection system of the Federal reserve banks thus clears checks for all sections of the country, with a resulting economy in the use of other forms of money and a widespread use of the check currency as a medium of exchange. In spite of the fact that the banking system of

[6] Clearing member banks are not regular members of the Federal reserve system, but derive their title from the fact that they maintain balances with the Federal reserve bank for clearing purposes only. Such banks may send their checks directly to the Federal reserve bank for collection while other non-member banks must collect through a correspondent.

the United States is composed of thousands of independent banks, the clearing operations of the Federal reserve system, together with the work of the local clearing houses, permit a use of the check currency which is as great as any that could be attained in a system with a single large bank with branches.

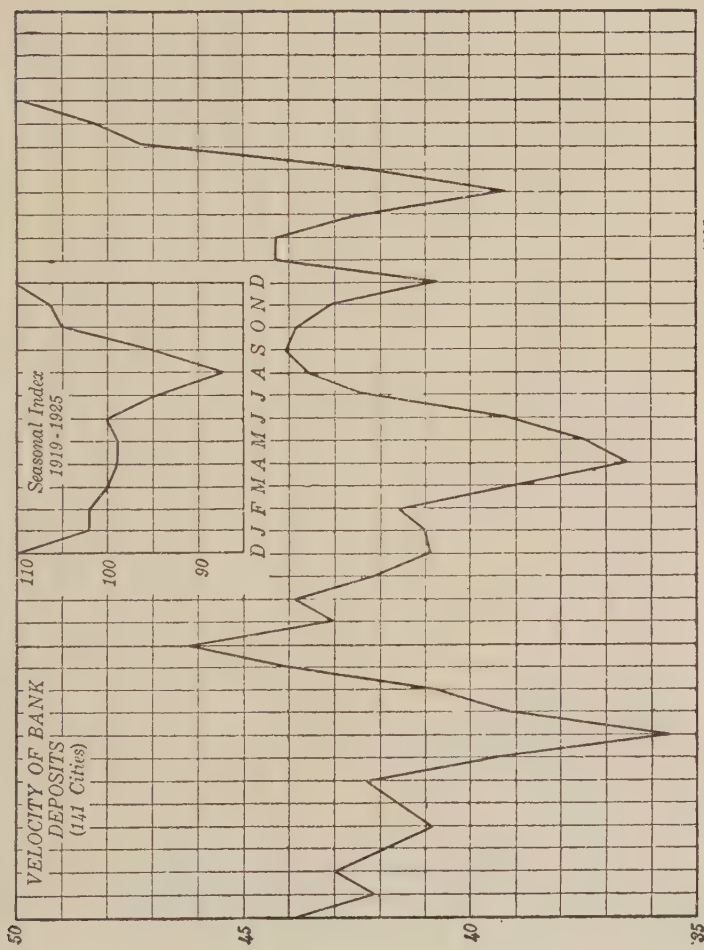
The turnover of demand deposits.—Before leaving the subject of the check currency, some comment should be made on the rapidity of turnover of demand deposits in the United States. Every time a bank pays a check which has been drawn against it by an individual depositor, it debits (decreases) the deposit account of the drawer by the amount of the check. Records of such debits to individual accounts are kept by the Federal reserve banks for the banks of 141 cities throughout the United States. These data, together with the figures showing the demand deposits of the same group of banks, may be used to calculate the average rate of turnover of the demand deposits in question. Roughly, the calculation of the annual rate of turnover for each month is made by the use of the following formula:[7]

$$\frac{\text{Average daily debits for month} \times \text{working days in year}}{\text{Average adjusted net demand deposits for month}}.$$

Such calculated estimates of the annual rate of deposits turnover by months are made regularly by the Federal Reserve Bank of New York. The accompanying chart shows the actual figures for rates of turnover of bank deposits in 141 cities from December, 1922 to December, 1925 inclusive, with an index showing the seasonal variation in these rates in the insert. It is clear from the chart that there is a wide seasonal movement in deposits activity from month to month throughout the year, and this may be taken as an

[7] For a more complete and accurate description of the computation of these figures, see Carl Snyder, *Business Cycles and Business Measurements* (New York, 1927), p. 145, footnote 2.

CHART IV. Velocity of Bank Deposits in the United States, 1923-1925.



Source: Snyder, *Business Cycles and Business Measurements*, p. 294.

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indication of the adjustment of the check currency to the needs of business. As the business need for money decreases, reaching a low point in August of each year, the activity of deposit accounts likewise decreases, while the latter again rises sharply to meet the increased business demands which come to a focus at the end of the year.[8] In a sense, the figures showing the rapidity of turnover of demand deposits may be compared with the amount of hand-to-hand money in circulation, while the total of demand deposits compares with the total stock of hand-to-hand money. The figures showing rates of turnover are therefore better than those for total deposits for the purpose of showing the seasonal elasticity of the check currency.

Conclusion.—The extent to which the check currency is used in the United States is ample evidence of the convenience and efficiency of this element in our monetary system. At the present time, one person at least in nearly every family above the common laborer class maintains a checking account and pays the bulk of his bills by check, and, in many households, the possession of such an account rests with more than one member of the family. It is because of the rather wide use of these non-business accounts that checks are probably more widely used in the United States than in any other country. Snyder[9] states that "the proportion of check transactions grows slightly greater" from year to year, but it seems doubtful if this increase can long continue. Some transactions will always require the use of hand-to-hand money and any marked increase in the use of consumers' accounts is not likely since they ordinarily yield but scant profit to the banks which hold them. But even

[8] The rates of deposit turnover shown in the chart are higher than would be indicated by Snyder's estimate of 25–30, given in the quotation from his article at the beginning of the chapter. That estimate, however, apparently applies to 140 cities which excludes New York where the rapidity of turnover is very high, while the figures used in the chart are for 141 cities, including New York.

[9] See the quotation from his article at the first of the chapter.

if no further increase in the use of checks in this country takes place, the United States will probably continue to lead most other countries in the use of the check currency for some time to come.

It will be recalled from the classification of the moneys of our system at the end of Chapter VI that the check currency was the last type of money which was included in the classification. With the present chapter, therefore, we shall conclude our discussion of the various phases of the United States monetary system and shall turn our attention, in the chapters which immediately follow, to the important theoretical questions which arise in connection with the value of money.

QUESTIONS FOR STUDY

1. Give facts to indicate the importance of the check currency as a medium of exchange in the United States.
2. What factors may strengthen the natural tendency of a check currency to be elastic?
3. To what extent were these factors present prior to the establishment of the Federal reserve system?
4. Describe the present organization of reserves against deposits in the United States.
5. What is the possible expansion of demand deposits at the present time on the basis of $1,000 in gold in the vaults of the Federal reserve banks? Show how you obtained this result.
6. How is the intra-district clearing of checks effected under present arrangements?
7. A business man in San Francisco receives a check on a Dallas bank in payment of a debt. He deposits this check in a member bank in San Francisco. Trace the course of the check, step by step, in the process of its collection through the Federal reserve collection system.
8. What is the nature and purpose of the Gold Settlement Fund?
9. Compare the operation of the Gold Settlement Fund with that of a local clearing house.
10. What is the approximate rapidity of turnover of demand deposits in the United States? How is this figure calculated? To what extent does this figure show a seasonal variation? What does this indicate with respect to the elasticity of the check currency?

CHAPTER IX

THE VALUE OF MONEY

Introduction.—A discussion of the value of money is necessarily chiefly concerned with a correct analysis of the principles which show how that value is determined. In the present chapter we shall discuss the forces which govern the value of money under the simplest possible conditions, namely, where gold money only is in use, while the effects of various types of credit money on the value of the standard will be reserved for consideration in succeeding chapters. Before proceeding on this basis, however, it is necessary to indicate just what is meant by the value of money, and to show how this value—or rather changes in it—may be measured.

The Meaning of the Value of Money

A definition of the value of money.—The value of money may be defined as its *power or ability to command other goods in exchange.* The same definition of the value of any economic good would hold in our present exchanging order, but a certain difficulty arises in connection with the measurement of the value, or changes in the value, of money which does not exist in the case of other economic goods. The difficulty arises from the fact that the values of all other economic goods are expressed in terms of money. Naturally, then, money cannot be used to express or measure its own value, for such a procedure would be meaningless. To

say that wheat is worth a dollar a bushel at a given time would give a clear indication of the value of wheat as compared with either the value of various other economic goods or that of wheat itself upon some other occasion. To say that a dollar is worth a dollar at a given time discloses nothing either as to the value of the dollar compared with the values of other goods, or as to the value of the dollar on that day compared with its value at some earlier date. This is bound to be the case because the government has, by law, ruled that 23.22 grains of fine gold shall constitute a dollar at all times. In other words, the government has fixed the *price* of gold, so that it is quite impossible for the price of a dollar to change, although its *value* may vary considerably from time to time.

Since the price of the gold in the dollar has been fixed, how are we going to tell what its value is, and whether or not it changes from time to time or remains relatively stable? Referring again to the price of wheat which is, say, one dollar per bushel, we might say that a dollar was worth a bushel of wheat, but, if we did so, and the price of wheat then rose to two dollars a bushel, we should be forced to say that a dollar was worth only one-half of a bushel of wheat. This would be correct as applied to wheat only, but during the interval in which the price of wheat had risen from one to two dollars, it would almost certainly be the case that some other commodity—let us say cotton—had fallen in price from 15 cents to, perhaps, 10 cents per pound. We should then find ourselves in the predicament of dealing with a dollar which, during a given interval, had risen in value with respect to cotton and had fallen in value with respect to wheat. It is quite clear, of course, that if the concept of value as attaching to the dollar is to have any real significance, the value of the dollar could not possibly rise and fall at the same time. As a matter of fact, in the illustration chosen, the change in the prices of wheat and cotton

probably represented changes in the real economic values of these two commodities in large part and little, if any, change in the value of the dollar.

Money represents *generalized purchasing power,* and changes in its value can be indicated only by changes in its ability to command goods in general in exchange, and not by its ability to command varying amounts of any particular good or group of goods. If the prices of a wide variety of goods and services are tabulated at the beginning of a certain period and again at the end, it will be found invariably that some prices have moved upward, some downward, and some, probably, have not changed at all. If it is found that the prices which have advanced are those of widely used and important goods, and that the number of price advances is greater than the number of declines, we may be safe in assuming that the value of money has declined, since each dollar is capable of purchasing a smaller quantity of goods in general than at the beginning of the period. In other words, if the average of all these prices has advanced, we might be justified in saying that the value of money has fallen.

Relative and absolute changes in the value of money.— But even this idea of changes in the value of money is not entirely satisfactory. A situation might easily be conceived in which the productivity of a given country is on the decrease, so that there is more or less of a growing scarcity of goods. If the money stock of the country in question remained unchanged (relatively to population) during such a period of decreasing productivity, prices would naturally tend to rise all along the line, with the result that the general run or level of prices would be higher at the end of the period than at the beginning. Would it then be proper to say that the value of money had fallen? Or has the value of money remained the same, absolutely, while the values of economic goods in general have increased? The author is

inclined to answer the first of these questions in the negative and the latter in the affirmative on the ground that the basis for the change in the price level lay entirely with the changes which had occurred in the economic values of a wide range of goods, and not at all with any change in the value of money itself. Stated somewhat differently, the upward trend of prices is necessary to represent the changes which have occurred in the values of goods—changes which have unquestionably taken place—and, therefore, such a trend of prices is necessary to depict the real economic situation. This attitude will be objected to strongly by those who assert that money has no absolute value apart from its value in exchange. The value of an economic good, however, is not merely relative to that of other economic goods. This can be shown by supposing a situation in which but one economic good exists. If this good satisfies a want and is scarce, it will have economic value despite the fact that there is no other good in terms of which its value can be measured. The same holds true of money, so long as its value is tied to that of some economic commodity such as gold. Gold has a value because it has utility and scarcity, and this value may remain unchanged in spite of the fact that the values of all other economic goods are rising or falling.

The value of money considered as its exchange value in this book.—In spite of the considerations brought out in the preceding paragraph, it will be noted that the value of money was defined as its ability to command other goods in exchange. The justification of this definition lies in the fact that in the practical application of some system of measurement of changes in the value of money, it is impossible to draw any distinction between changes in purchasing power which arise from alterations in the values of goods and those which arise from real changes in the value of money. Practically, the purchasing power of the dollar—its command over economic goods in general—rises, falls, or remains sta-

tionary, regardless of the forces which have brought about these results. It therefore seems expedient to recognize all changes in purchasing power as changes in the value of money. At the same time, it will not do to forget the fact that such changes may result from forces which are brought about by variations in the general productivity of the country as well as from forces which originate entirely on the money side. If we are to take an intelligent attitude on money affairs, it is certainly as important to know *why* a given change has taken place as to know what the extent of that change has amounted to. One subtle theorist [1] has termed the changes in the general purchasing power of money which result from changes in productivity *relative* changes in the value of money, while those resulting from conditions affecting the money itself are termed *absolute* value changes: and this is a distinction which it will be well to bear in mind.

The Measurement of Changes in the Value of Money

Price index numbers.—Since, for practical purposes, we shall consider all changes in the purchasing power of money, whether relative or absolute, as changes in its value, it is pertinent to inquire how these variations are to be measured. The answer is by means of index numbers of the general level of prices. Any *detailed* discussion of the mechanics of index number construction is outside the scope of this work, belonging rather to the field of statistical method. However, some general observations on the nature and application of price indexes seem desirable in the present connection.

Price index numbers are series of abstract numbers which express the relative changes in the magnitude of statistical averages or aggregates of prices.[2] This technical and high-

[1] Taylor, *Some Chapters on Money*, Chapter VI.

[2] This definition is adapted from a general definition of index numbers as given by A. A. Young in a *Handbook of Mathematical Statistics* (Boston, 1924), p. 181.

sounding definition may, perhaps, be made clearer by the use of a few simple illustrations of index number construction.

The unweighted arithmetic average.—Let us assume, for the sake of simplicity, that there are but four agricultural commodities sold on the market and that we wish to find whether or not the general level of agricultural prices rose or fell between 1910 and 1911. With corn, cotton, hay, and wheat, as our four commodities, their 1910 prices are found to be: corn, $.480 per bushel; cotton, $.141 per pound; hay, $12.14 per ton; and wheat, $.883 per bushel.[3] Since we are interested in *changes* in the price level of these commodities and not in the absolute level, some year must be adopted as the base year. The price level in the base year then furnishes a basis for comparison with other years included in the series. As we have only two years in our series—1910 and 1911—we shall choose the first of these as the base year and then compare the price level in 1911 with this base. Any figure may be adopted to represent the price level in the base year, but the usual procedure of calling it 100 is the best because percentage changes between the base year and other years in the series may then be obtained directly.

The next step in the procedure is to ascertain the prices of the four products in 1911. They were: corn, $.618; cotton, $.088; hay, $14.29; and wheat, $.874. Comparing these with the 1910 prices, it will be seen that corn and hay have risen in price while the prices of cotton and wheat have fallen. How are we to determine whether the *price level* of these commodities has risen or fallen in the period in question? It will hardly do to average the prices in 1910, call that figure 100, and compare this with the average of the 1911 prices reduced to a percentage basis. The objection to this procedure is that we should be averaging the prices

[3] Data for this and the following examples are taken from Mills, *Statistical Methods*, p. 208.

of a bushel of wheat and of corn, a pound of cotton, and a ton of hay. To avoid this, each price is represented by an abstract number called a relative which would be equal to 100 in 1910, the base year. The relatives for 1911 are then computed by taking the percentage of each 1911 price to the corresponding price in 1910. An arithmetic average of the relatives is then computed. This average will, of course, be 100 for 1910, while for 1911 it will show the relation of the 1911 price level to that of the base year. The whole procedure is most conveniently shown in the form of a table as follows:

(1)	(2)	(3) Price	(4) Relative	(5) Price	(6) Relative
Commodity	Unit	1910	1910	1911	1911
Corn	bu.	$ .480	100	$ .618	129
Cotton	lb.	.141	100	.088	62.5
Hay	ton	12.140	100	14.290	117.5
Wheat	bu.	.883	100	.874	99
			4)400		4)408
			100		102

According to the method here used, the price level of the selected commodities rose from 100 to 102, or two per cent, between 1910 and 1911. Naturally, an index number computed from the prices of but four commodities is of no significance for our purposes, but the example given will illustrate the method of computing an unweighted price index number by the use of the simple arithmetic average.

Other unweighted price indexes.—Other methods than the one just described may be used to obtain index numbers of prices. If the *geometric mean* or average is employed instead of the arithmetic, it is necessary to get the product of the relatives and extract the nth root, when n equals the number of price series used. This will give the proper result in averaging price ratios, but the method is so cumbersome and arduous when the number of price series is large that it is little used for the purpose in question.

The *median* is sometimes used in the computation of price indexes. In order to obtain the index number desired by the use of this method, the relatives are arranged in ascending or descending order and the middle item (or median) is then taken as the price index for the year or month in question. Thus in the preceding example of the unweighted arithmetic mean, the relatives for 1911 are 62.5, 99, 117.5, and 129. Since there are an even number of commodities in this case, the median would be the average of 99 and 117.5 (the two middle relatives), or 108.25. Naturally, this method gives satisfactory results only when the number of price series is large. Its advantage over the arithmetic average is that it is not influenced by extreme price changes in a few commodities.

The last method we shall discuss is the unweighted *aggregate of actual prices.* In the example used above, the prices of corn, cotton, hay, and wheat are added together, the aggregate or sum amounting to $13.644. The sum of the 1911 prices is $15.870. Setting the 1910 aggregate equal to 100, the index number for 1911 is found to be 116 ($13.644 : $15.870 : : 100 : 116). The objection to this method is the same as to an average of actual prices, namely, that the prices of entirely different units are added together. Further, all the indexes treated so far are objectionable in that the commodities are all considered as of equal importance. In order to remedy this drawback, it is essential to introduce certain weights in the calculation of these index numbers.

The need for weights.—The need for some sort of weights will be made clear by a moment's reflection. Suppose, for example, that one of the commodities included in the computation of an unweighted arithmetic average of prices is toothpicks, and that the price of these is quoted at five cents a box in the base year. Suppose, further, that the following year the price of toothpicks rises to ten cents a box. The

relative for toothpicks in the latter year would be 200 and, since there are no assigned weights, this would influence the final index number as much as a rise in the price of wheat from 80 cents to $1.60 per bushel and more than a fall in the price of hay from $14 to $7 a ton. This criticism does not apply to the median. The method of calculation of the median is such that the result is not likely to be influenced by extreme price changes in a few commodities. In fact, the median is the only type of index number which appears to give satisfactory results when unweighted. The unweighted aggregate of actual prices is very unsatisfactory not so much because of possible wide fluctuations in the prices of unimportant commodities, but rather because the prices added are those of various heterogeneous units such as bushels, tons, pounds, bags, boxes, etc., which are not directly comparable. Thus, in the previous example, the high index number of 116 obtained by the use of the unweighted aggregate was largely due to the change in the price of hay. Although the price of hay rose only 17.5 per cent, the unit in which the price was quoted (the ton) is so large as compared with that for cotton that it would have been necessary for the price of cotton to rise more than 1000 per cent in order to influence the resulting index as much as did the rise of 17.5 per cent in the price of hay. The result is really not an unweighted index, but one that is weighted in a most illogical fashion.

Weighted price indexes.—Two examples only will be used to illustrate the nature of weighted price index numbers. As to the method of selecting the weights employed, they may be either chosen arbitrarily or selected according to some definite plan. We shall illustrate the weighted arithmetic mean by introducing an arbitrary set of weights in the example previously given. Suppose that the economic statistician who is constructing this weighted index number decides that hay is the least important commodity, that corn is twice

as important as hay, and that cotton and wheat are each three times as important as hay. The weights he will assign, then, will be: corn, 2; cotton, 3; hay, 1; and wheat, 3. In calculating the index number, each relative is multiplied by the corresponding weight and these products are divided, not by the number of commodities used, but by the sum of the weights. This has the same effect as though corn had been included twice in the list of commodities, hay once, and wheat and cotton three times each.

The results of this procedure, using the arithmetic average, are shown in the following table:

(1) Commodity	(2) Unit	(3) Price 1910	(4) Relative 1910	(5) Rel. x wt. 1910	(6) Price 1911	(7) Relative 1911	(8) Rel. x wt. 1911	(9) Weight
Corn....	bu.	$ .480	100	200	$ .618	129	258	2
Cotton ..	lb.	.141	100	300	.088	62.5	187.5	3
Hay.....	ton	12.140	100	100	14.290	117.5	117.5	1
Wheat..	bu.	.883	100	300	.874	99	297	3
				9)900			9)860	
				100			95.6	

It will be observed that the method of weighting used caused the index to fall from 100 in 1910 to 95.6 in 1911, instead of rising to 102 in the latter year as in the case of the unweighted arithmetic average. While such a wide discrepancy would hardly occur between the two results if the number of commodities were large, it should nevertheless be clear that a weighted average comes nearer to disclosing the true state of affairs than does an unweighted average, provided the weights have been chosen with some regard to the facts.

To illustrate the method of choosing weights according to some logical scheme, we shall use an aggregate of actual prices weighted by the quantities of the different goods produced in the base year.[4] The computation would be as indicated in the following table:

[4] The usual procedure under this method is to shift the weights to quantities produced or marketed in later years as such data become available.

(1) Commodity	(2) Unit	(3) Weight-millions of units	(4) 1910 Price	(5) Price x wt. 1910	(6) 1911 Price	(7) Price x wt. 1911
Corn	bu.	2,886	$ .480	$1,385,280,000	$ .618	$1,783,548,000
Cotton ..	lb.	5,805	.141	818,505,000	.088	510,840,000
Hay	ton	69.38	12.140	842,273,200	14.290	991,440,200
Wheat ..	bu.	635.1	.883	560,793,300	.874	555,077,400
				$3,606,851,500		$3,840,905,600

$3,606,851,500 : $3,840,905,600 : : 100 : 106.5

The inconsistency which was so apparent in connection with the unweighted aggregate of actual prices has disappeared with the application of rational weights. What has really been compared here is the total cost of our selected bill of goods in 1910 with the total cost of the same bill of goods in 1911. This gives a satisfactory indication of changes in the purchasing power of money over the particular bill of goods included in the index.

Having now given some brief indication of the methods by which index numbers of prices are constructed, we shall proceed to a concise description of the various price indexes currently published in the United States with a view to discovering how adequately they perform the function of measuring changes in the value of money.

Current price indexes in the United States.—Until recently, the nearest approach to an index number showing changes in the value of the dollar was the general purpose index of wholesale prices, published monthly by the Bureau of Labor Statistics. This index number, which has recently been revised,[5] is now computed from 550 price series. The index is calculated by taking an aggregate of the included price series weighted by the quantities marketed in 1923–25 (average). This aggregate is then expressed as a percentage of the aggregate for the base year, which is now 1926. This

[5] See the *Federal Reserve Bulletin*, October, 1927, pp. 696–699.

index number is satisfactory as regards its technical construction and does show accurately the movements of the level of wholesale commodity prices in the United States. More specifically, it shows changes in the cost at wholesale of a group of widely assorted commodities at monthly intervals.

Aside from the Bureau of Labor Statistics index number of wholesale prices, another general purpose index of prices is published weekly by Professor Fisher. It is based upon the wholesale prices of some 200 commodities and is computed in similar fashion to that of the Bureau. The Federal Reserve Board also publishes a price index, using the same data as the Bureau of Labor Statistics, but grouping the commodities somewhat differently. Bradstreet and Dun each publish a wholesale price index, but these are not particularly useful as general purpose numbers as Bradstreet's index gives undue weight to certain commodities, particularly cotton and textiles, while Dun's gives to great weight to foodstuffs.[6] Other price indexes appear currently, but are mainly constructed for some special purpose. In this class are Persons' commodity price index, using in its construction the prices of ten sensitive commodities only, and a price index of 20 basic commodities constructed by the Federal Reserve Bank of New York. Both of these are for the special purpose of measuring changes in business activity. The United States Department of Labor, in addition to its general purpose index number, computes a cost of living index for 32 cities, a retail food price index for 51 cities, and a shelter index of rents. The New York State Department of Labor compiles a wage index for unskilled labor, clerks, and teachers. Besides these, various other bureaus and individuals, public and private, publish one or another sort of special purpose index. Among the most important of these are the

[6] See Mills, *op. cit.*, pp. 229–251, for an excellent description of American price index numbers.

security price indexes published by the Standard Statistics Company.

General purpose numbers and changes in the value of money.—Presumably, the distinction to be drawn between general and special purpose price index numbers is that the latter are meant to show variations in specific groups of prices only, while the former, being more inclusive, are supposed to indicate differences in the general level of prices at different dates, i.e., to measure changes in the value of money. As a matter of fact, this is the distinction which is generally made, and business men and students alike ordinarily consider a rise or fall in Fisher's or the Bureau's wholesale price indexes as recording a decline or increase in the value of money. This attitude is of questionable validity. After all, these index numbers are, in a sense, also special purpose numbers. They record changes in the general wholesale price level of physical commodities, but this is all. They do not show changes in retail prices, the level of which apparently changes both less rapidly and in less degree than that of wholesale prices. They are not affected by alterations in the level of stock prices, which roughly indicate changes in business profits. They take no account of wages, the price of labor. They are not influenced by variations in urban house rents or by changes in realty values. In fact, there are many important elements in the entire price system which are not included in these so-called general purpose index numbers, and it by no means necessarily follows, because wholesale prices are rising or falling, that these other price elements are moving in the same direction or with the same intensity.

A measure of the general level of prices.—Early in 1926, the Federal Reserve Bank of New York, in its *Monthly Review of Credit and Business Conditions,* began to publish a composite index of the general price level which met many of the objections cited in the preceding paragraph. This

index has been compiled under the direction of Carl Snyder and will be referred to from now on as Snyder's index. As first published in the *Review,* this index included wholesale commodity prices, wages, cost of living, and rents. Commodity prices were given a weight of 2; wage payments (including unskilled labor, clerks, and teachers), 3½; cost of living, 3½; and rents, 1.[7] The chief omission, in view of the available data, seemed to be security prices. Furthermore, since Snyder had run the index back to the year 1875, there was chance for doubt concerning the completeness of the data used for the earlier years, while the weight given to each element in the index may seem questionable.[8] Within recent months, this index has been revised for the period 1913 to date, and now represents a more complete and accurate estimate of the general price level than would have been possible to obtain a comparatively few years ago. The revised index[9] includes twelve price groups with weights as follows:

	Weight
1. Industrial commodity prices at wholesale	10
2. Farm prices at the farm	10
3. Retail food prices	10
4. Rents	5
5. Other cost of living items	10
6. Transportation cost	5
7. Realty values	10
8. Security prices	10
9. Equipment and machinery prices	10
10. Hardware prices	3
11. Automobile prices	2
12. Composite wages	15

Clearly, such an index is bound to furnish a better measure of changes in the value of money than any index computed from wholesale commodity prices alone.

[7] Snyder, *Business Cycles and Business Measurements,* pp. 135–138.

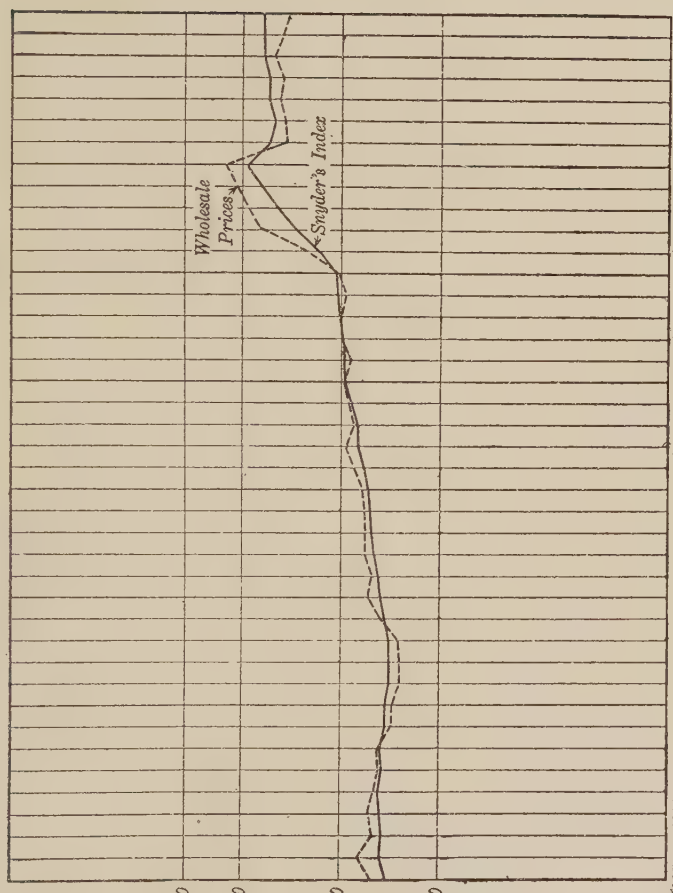
[8] Compare Mitchell, *Business Cycles,* New Edition, p. 305.

[9] For a complete discussion of this index, see Snyder's article in the *Review of Economic Statistics,* February, 1928, pp. 40–52.

In order to show that a fairly wide difference exists between changes in the general price level and changes in the level of wholesale commodity prices, attention is called to the accompanying chart. This shows Snyder's index and that of the Bureau of Labor Statistics (wholesale prices) from 1887 to 1927 inclusive. The figures used are annual averages of the monthly index numbers. Prior to 1913, Snyder's index is charted from the original figures, while the revised index has been used from 1913 to 1927. More will be said of the relation between the general price level and the level of commodity prices at wholesale in a later connection. For the present, it is sufficient to point out that these two price levels are not identical (as shown by the chart) and that we are therefore not justified in looking on changes in the wholesale commodity price level as changes in the value of money.

This is not to be construed as a criticism of such index numbers as those of the Bureau or Professor Fisher. They are excellent indexes and serve a very useful purpose. It is an extremely desirable thing to know whether commodity prices are rising or falling, and these indexes show this to perfection as regards wholesale prices. The objection is to the assumption that changes in these index numbers measure at all accurately alterations in the value of money. To hold that they do is only somewhat less absurd than to claim that a rise or fall in the prices of agricultural commodities, or of wheat alone, shows a decline or increase in the value of money. Although less extreme, the absurdity is still there. A decline in commodity prices may be offset, wholly or in part, by higher security prices, higher wages, or higher house rents. The student should realize the value of price index numbers of all sorts, but he should also have a full realization of just what the various indexes which are available do, in fact, measure.

CHART V. Snyder's Index of the General Price Level and the Wholesale Commodity Price Level (B. L. S.), 1887–1927.



Sources: Snyder's *Index*. *Business Cycles and Business Measurements*, 1887–1913, p. 286. *Review of Economic Statistics*, Feb., 1928, 1913–1927, p. 49. *Wholesale Prices*, Bureau of Labor Statistics. *Index*.

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The Determination of the Value of Money

The value of money and the value of the standard.—Leaving now the question of the measurement of changes in the value of money, we come to a consideration of the forces which determine that value. It should be clear that, so long as a country maintains a full gold standard, there can be no divergence between the value of gold and the value of the country's money; for, since the latter is kept at all times convertible into gold, any increase in the value of money above that of gold would lead to a flow of gold into the money stock from other sources, while a decrease in the value of money below that of gold would result in a flow of gold from the money stock into other uses. Our problem then narrows down to an analysis of the determinants of the value of the standard. The use of various sorts of credit money, as we shall see, affects these determinants to some extent, but that is a matter for later consideration.

The standard of value being a commodity—gold—has its value determined like that of any other economic good, by the relation between the demand for it and the supply of it. The forces which enter into the supply side of the situation are similar to those which characterize the supply of any durable commodity, but the nature of the demand for gold has been complicated by its wide use as a standard of value and a measure of the values of other goods. It is impossible to think of the price of gold as measuring its value, just as it is out of the question to try to measure the length of a standard yard in terms of itself. Nevertheless, the demand for gold arises from its utility (1) in the arts, and (2) as a monetary standard of value, and it is of the greatest importance that we should understand thoroughly the nature of the latter, or monetary, demand for gold.

The demand for money.—In order to consider the simplest situation first, we shall assume a country without a banking

system which uses only gold coin as money. Under such simplified conditions, what constitutes the demand for money? It is the amount of goods, other than gold, which the people of the country are willing and able to forego annually in order to secure the amount of gold coin which they desire. This coin is of use in the last analysis only for obtaining other goods.[10] In the course of the process of serving as a medium of exchange, however, it may be *held* for a considerable period. If men are paid by the month, they will hold a comparatively large stock of money at the beginning of the month which will gradually be spent for goods during the interval until the next pay day. Each person will, then, on the average, keep a certain stock of money on hand, the size of the stock depending upon how much he receives each month, his habits of purchase—whether by cash or on credit—and upon how cautious he may be. If he desires to be well protected against unexpected contingencies, he will keep a stock of money on hand at all times, so that he may take advantage of unexpected or unpredictable possibilities for profit, or meet unexpected demands for payment such as doctor bills, etc. Business houses also will maintain cash reserves, (1) lest necessary payments exceed receipts at any time, (2) to pay dividends, and (3) to maintain a generally solvent position. The demand for money in such a community is the sum of these demands for money to hold on the part of the individual citizens and business houses. The marginal demanders of money are those who would first exchange their money, or part of it, for additional goods if the prices of goods should fall, and the marginal utility or significance of money will be the significance attaching to that portion of the monetary stock which individuals consider it just worth while to hold as money, instead of exchanging it for goods or services.

[10] It may be demanded for use in the arts, but if so it is withdrawn from the stock of money and constitutes a decrease in the supply of money.

The supply of gold.—In considering the supply side of the situation, we shall look on supply as the total gold stock of the country.[11] A part of this stock is devoted to use as money, while the remainder constitutes the portion which is used in the arts and which is reconvertible into money. The marginal significance of the monetary gold and that used in the arts will tend to be equal at all times, for, if the marginal significance of money should rise while the marginal importance of the gold used in the arts remained unchanged, the value of gold as money would rise above its value in industrial uses, and it would become profitable to convert some of the latter into the former until their marginal significances were again at equality in both uses.[12] However, the distribution of the total gold stock between its industrial and monetary uses is determined by the demand for money in relation to the demand for watches, gold plate, etc., and does not enter into the factors determining the supply of gold. Since the marginal significance of gold used in the industrial arts and that of gold used as money are equal, we may consider the demand for money in relation to the supply of gold in analyzing the determinants of the value of money.

The supply of gold, which we have taken to be identical with the gold stock, can be decreased only by loss, abrasion, or the use of gold for purposes which prevent its being again

[11] Lest there be some who object to the identical use of the terms supply and stock, attention is called to the following quotation from one of the works of an eminent English economist: "The stock of some things (such as milk, or even wheat) on hand at any one moment is so small in proportion to the annual produce of the article, that we think of the stream of produce as furnishing the supply. Of other things, such as land, buildings and railways, the annual production is so small compared with the stock in existence at any one moment, that we think of the stock, rather than the annual produce, as furnishing the supply." Cannan, *Money*, p. 65.

[12] Gold which has been used for filling teeth, or for certain other purposes, cannot well be recovered and used as money in case the value of gold as money rises. This is immaterial, however, as long as there is some gold which can, and will, flow from the arts into the money stock.

turned into bullion, and can only be augmented by the annual production of gold from the mines. The amount of the annual production will depend upon the cost of producing the gold in relation to the demand for it. Since the time of the fortuitous discoveries of gold about the middle of the nineteenth century, the metal has been produced on an increasing cost basis. That is, in order to increase the output, a higher expenditure per unit of product is necessary. Since the price of gold, as set by the mint, is stationary, the increased amount of gold is produced at a narrower margin of profit, barring discoveries of new and more efficient methods of extracting the metal. If a general rise of prices takes place, which is the same thing as a fall in the value of gold, labor and capital will be higher in price, and the cost of producing gold will increase all along the line. Under such conditions, it will no longer pay to continue working the highest cost mines. They will accordingly shut down, diminishing the output of gold. In the opposite fashion, a fall in the general price level will tend to decrease costs all along the line and enable producers of gold to open up the poorer or higher cost mines and operate them at a profit, a procedure which will increase the gold output. An increase in the value of gold will tend, therefore, to result in an augmentation of the gold stock through increased production, while a decrease in its value will not cause a decrease in the stock, but will rather result in its being increased at a diminishing rate.

Conclusion.—We must therefore come to the conclusion that the value of money in a country such as that we have pictured is determined by the marginal significance of money and the marginal cost of producing gold. But a word more needs be said about the demand for money. Money, as has been noted, is of use in the last analysis only for the purpose of obtaining other goods or services in exchange for it. While it is ordinarily held for a period of time before being

spent, this period is fixed by the habits and customs of the people of the country with respect to wage payments, methods of buying, conservatism in the maintenance of contingent reserves, and the like, which *tend* to remain fairly stable over long periods of time. Unless something occurs to change the attitude of individuals regarding the amount of their income and property which they wish to hold in the form of money, this demand for money to hold will tend to be constant relatively to changes in population. Presumably, under such conditions of demand, if the amount of money were to be suddenly doubled, each person would hold twice as much as before and would spend just twice as much as before for goods and services, so that the general level of prices would exactly double. This peculiarity in the demand for money, resulting from the fact that its real use is found only in the purchase of other goods, is responsible for a widespread belief that *the value of money varies inversely as the quantity, and in exactly the same proportion.* This is the so-called quantity theory of money, a theory which has exerted so wide an influence among students of money that it will be given detailed treatment in the following chapter.

QUESTIONS FOR STUDY

1. Define the value of money. Distinguish between the value of gold and its price.
2. What is meant by generalized purchasing power?
3. What is the difference between relative and absolute changes in the value of money? Why is it important to make this distinction?
4. Practically, in what way may changes in the value of money be measured?
5. What is a price index number?
6. Explain the construction of unweighted price index numbers by the following methods: (a) arithmetic average; (b) geometric mean or average; (c) median; (d) aggregate of actual prices.
7. Why is the use of weights desirable? In which of the above types of index number is the need for weights least? Most?
8. What alteration must be made in the method of construction of price indexes when weights are used?

9. Describe briefly the more important current price index numbers in use in the United States.

10. Why is the designation "general purpose index numbers" misleading as it is generally used?

11. How would an index number of the general price level differ from the so-called general purpose indexes?

12. Describe Snyder's index of the general level of prices. Is it a more accurate indicator of changes in the value of money than an index of wholesale commodity prices or not? Why?

13. What factors determine the value of money?

14. What constitutes the demand for money from the point of view of (a) the country as a whole, and (b) the individual? Show the way in which the habits and customs of a people influence their demand for money.

15. What distinction is there, if any, between the demand for money and the demand for gold?

16. What factors go to determine the supply of gold?

17. In the long run, the value of gold is determined by the marginal significance of gold for use as money and the marginal cost of producing gold. Defend this statement.

BIBLIOGRAPHICAL NOTE

Since this chapter and the four which follow are all concerned with various phases of the value of money, the references for all five chapters (IX, X, XI, XII, and XIII) will be included in the present note.

On the measurement of changes in the price level, F. C. Mills, *Statistical Methods* (New York, 1924), furnishes a complete description and analysis of price index numbers in Chapter VI. Another excellent treatment of wholesale price indexes is to be found in the same author's *The Behavior of Prices,* National Bureau of Economic Research Publication No. 11, (New York, 1927), Chapter III, Section III. Snyder's index of the general price level as first calculated is described in C. Snyder, *Business Cycles and Business Measurements* (New York, 1927), Chapter VI. The description of the revised index of the general price level is to be found in *The Review of Economic Statistics,* February, 1928, pp. 40-52.

In the United States, numerous contributions to the theory of the value of money have been published from time to time. A few of the more important of these may be mentioned. I. Fisher, *The Purchasing Power of Money,* presents a scholarly defense of the quantity theory of money in its narrowest form. E. W. Kemmerer, *Money and Credit Instruments in their Relation to General Prices,* and F. W. Taussig, *Principles of Economics,* Volume I, Book III, Chapters 18 and 30, furnish somewhat less unqualified adherence

to the strict form of the quantity theory, particularly the latter, although both authors are grouped with the quantity theorists in this country. Opposition to the quantity theory is voiced in B. M. Anderson, *The Value of Money,* J. L. Laughlin, *The Principles of Money,* and W. A. Scott, *Money and Banking.* The first of these is exceedingly stimulating and worthy of careful attention. W. T. Foster and W. Catchings, *Money,* sets forth the relation between money and business activity in a somewhat unique and interesting fashion. F. M. Taylor, *Some Chapters on Money,* Chapter VI, gives a sane and satisfactory explanation of the value of money.

Despite the profusion of American literature on the value of money, the English writers have, on the whole, made more significant contributions to money value theory. E. Cannan, *Money,* gives a more satisfactory explanation of the demand for money than any other work on the subject with which I am familiar. R. G. Hawtrey, *Currency and Credit,* while written in heavy and difficult style, contains much excellent food for thought. *Good and Bad Trade* (London, 1913), by the same author is also illuminating in spots. An excellent piece of work, and one that is worthy of careful study, is A. Marshall, *Money Credit and Commerce.* An exceedingly clear explanation of the value of money, following the lines of Marshall and Cannan, is presented in F. Lavington, *The English Capital Market* (London, 1921) Part II. A characteristically brilliant defense of the quantity theory, but one which will bear some criticism, is found in J. M. Keynes, *Monetary Reform* (American Edition, New York, 1924). An extremely readable and fairly liberal interpretation of the quantity theory is contained in D. H. Robertson, *Money.*

Among writers of other nationalities, the German economists have written copiously on the value of money, but the majority of their works have not been translated and will not be cited. The work of the distinguished Swedish economist, Gustav Cassel, *A Theory of Social Economy,* Third Book, Chapter XI, is concerned with the value of money and presents the quantity theory in the light of statistical evidence.

CHAPTER X

THE QUANTITY THEORY OF MONEY

The theory restated.—Although the substance of the quantity theory was presented in the last paragraph of the preceding chapter, it will be well, before undertaking a critical analysis of the theory, to introduce a few qualifications and then restate the principle in more exact form. While the quantity theory states that the value of money varies inversely and proportionally as the quantity, it asserts that this is the case only when other conditions remain the same. The chief of these "other conditions" is the demand for money, by which is meant the amount of goods and services offered in the market in exchange for money. Another possible "interfering condition" which the quantity theorist takes into account is the velocity of circulation, or rate of turnover, of the available quantity of money. This, also, must remain constant if the soundness of the main statement of the theory is to be demonstrated. The quantity theorist, therefore, qualifies his statement as already noted and sets it forth in the following fashion:

Other conditions remaining the same, the value of money varies inversely and proportionally as the quantity available.

The quantity theory controversy.—For many years, this simple and harmless-sounding theory has been the subject of a great controversy on the part of two schools of monetary students. In this country, Professor Fisher and his fol-

lowers, on the one hand, have defended the theory assiduously, while, on the other hand, Professor Laughlin and his adherents have shown themselves to be bitterly opposed to it. Professor Fisher takes the stand that the price level is normally passive, changes in the value of money resulting rather from changes in its quantity. The followers of Laughlin assert that the quantity of money adjusts itself largely to changes in the price level rather than the price level adjusting itself to changes in the quantity of money.

It is apparent, therefore, that the controversy over the quantity theory has been concerned more largely with the question of causation—as between changes in the price level and in the quantity of money—than with the quantitative relationship between changes in the price level and alterations in the amount of monetary media. Of late years, however, the tendency has been to stress the latter relationship and to avoid the question of cause and effect as much as possible. Desirable as this trend of affairs may be, it has not yet effected a unification of opinion on the part of writers on the subject of money. Some doubts are still expressed regarding the assertion that there is a high degree of correlation between all changes in the price level and changes in the quantity of money. It is therefore important that we examine the quantity theory of money rather minutely and attempt to ascertain to what extent, if at all, it may be considered as a satisfactory explanation of changes in the value of money.

The equation of exchange.—The quantity theory can best be explained in relation to what is termed the equation of exchange. It is practically a truism, as stated by Professor Marshall,[1] that "the total value of a country's currency, multiplied into the average number of times of its changing hands for business purposes in a year, is of course equal to the total amount of business transacted in that

[1] *Money Credit and Commerce*, p. 43.

country by direct payments in that year." If we call the total value of the country's money, M, and its average turnover or velocity of circulation, v, and the total amount of business or trade, T, then the equation of exchange can be stated as follows:

$$Mv = T$$

If there are n units of money, then the value or purchasing power of each unit, p, will be equal to M/n. Then, dividing our first equation through by n, we have

$$Mv/n = T/n$$

Substituting p for M/n

$$pv = T/n$$

And, dividing through by v

$$p = T/nv$$

In this equation, T represents the vast aggregate of goods and services which have been exchanged against money over the period of a year. Some of the goods composing T will have exchanged hands more than once, but these exchanges all constitute part of the total business transactions for the year and are included in the aggregate which is represented by T. Since the number of units of money, n, is not so great as the number of business transactions, T, each unit of money will change hands a considerable number of times in the course of the year, and the average number of times which all the units of money change hands is indicated in the equation by v, and is usually termed the velocity of circulation of money.

Equation of exchange applies to a period of time.—It is to be noted that the equation of exchange, as explained in the preceding paragraph, applies to a given period of time, as a year, for example. This is important, for the equation

is useless when applied to a given moment of time, or even to a day's transactions. The inadequacy of the equation of exchange when the period covered is too brief is well stated by Dr. W. C. Mitchell as follows: [2]

> The three quantities represented in the equation of exchange as simultaneous—payments, prices, and physical volume of trade—are in fact three stages through which business transactions pass in time. When a sale is made, the parties agree, tacitly or explicitly, upon the price, upon the quantity of goods to be transferred, upon the date of delivery, and upon the date when payment is due. In retail trade, all three stages are frequently completed in a few minutes—the customer assents to the price, receives his bundle, and pays cash. But delivery is deferred when consumers' goods are made to order, and payment is often deferred to the end of the month, or spread over several months on some "installment plan." In wholesale trade, weeks or months commonly elapse between the date when a sale is made at an agreed-upon price, the date when the goods are delivered to the buyer, and the still later date when the seller receives a check. In other types of business the time relations between the three stages present a wide variety, ranging from prepayment for goods to be delivered in the future to long deferred payments for goods delivered in the past. How long are the average lags of deliveries behind price agreements, and of payments behind deliveries; how these lags vary from trade to trade, from district to district and from period to period, are matters about which little is known; but that such lags play a prominent rôle in business planning is certain. Time is therefore a factor which cannot be disregarded in studying the relations between prices and the circulating medium.

It seems clear, then, that a year is the shortest period of time to which the equation of exchange may be applied with the prospect of obtaining satisfactory results. Bearing this qualification in mind, we may now proceed with an examination of the quantity theory.

Assumptions of the quantity theorists.—It has been pointed out that the main statement of the quantity theory can be correct only if the demand for money—defined as the quantity of goods offered for money in the market—and the velocity of circulation of money are constant. Trans-

[2] *Business Cycles*, New Edition, New York, 1927, pp. 130–131.

lated into the terms of the equation of exchange, if T and v remain unchanged, any variation in n will result in an inversely proportional change in p, the purchasing power of money. This cannot be reasonably disputed, and the strict quantity theorists, in order to make a case for themselves, have therefore assumed that T and v do, in fact, remain practically unchanged. The opponents of the quantity theory, on the other hand, have contended that T and v almost never remain constant. It is accordingly necessary to examine these two factors in the equation a little more fully. Let us first consider T. In a rapidly advancing and progressive country, there can be no doubt but that T increases with the increase in the population and general productivity of the country. The physical volume of production in the United States, for example, has increased at the average rate of about 3½ per cent annually as far back as the records go.[3] Nevertheless, the complexity of economic phenomena has made necessary the assumption of practically static conditions in working out economic laws and principles. We may grant, therefore, the legitimacy of the assumption that T remains constant for the purpose of determining the value of money. This would mean that, in practice, allowance would have to be made for increases in population and productivity in trying to determine the effect of changes in the quantity of money on its value.

But even if we assume the factor T to be constant, the soundness of the quantity theory also requires constancy in the factor v, the average velocity of circulation of money. As a matter of fact, does v remain unchanged for the most part? If we assume that T remains constant, the factor v in the equation of exchange is a function of the demand for money. If individuals desire goods rather than money, and so decrease their demand for the latter, they naturally offer

[3] To 1870. See Snyder, *Business Cycles and Business Measurements*, p. 51.

more money for goods than before, hold smaller amounts of money on the average than formerly, and, by using money which they otherwise would have held, increase the velocity of circulation. Increases in the demand for money will, on the other hand, result in a lower velocity of circulation than formerly. It is much better to refer to the demand for money directly than to get at it indirectly through the velocity of circulation, but since the quantity theorists have used the latter terminology, we shall continue with it. To return to the question asked, does v for the most part remain unchanged? On *a priori* grounds, the answer would seem to be that it does not. Men's notions with respect to the amount of their incomes which they desire to hold in the form of money are subject to rather frequent changes. This is especially true of business establishments. The amounts of cash which they feel it necessary to hold vary with business conditions, the general state of credit, and a number of other factors. What may be considered an ample cash reserve at one time would be thought wholly inadequate at another. The assumption that money is desired only to spend immediately for goods apparently will not hold. At times, business men desire money as such, for the reason that they feel a considerable reserve of cash to be essential to a sound business condition and to the maintenance of solvency. At other times the need for cash as such is greatly decreased and a sound position can be maintained with a comparatively small reserve of money.[4]

The demand schedule for money.—In this connection, it becomes necessary to point out a distinction between two possible interpretations of the phrase "the demand for

[4] This situation with regard to variations in the demand for money would be more pronounced in a country operating under the simple conditions assumed in the last chapter—a gold currency only and no banks—than would be the case in a country with a highly organized banking system. The reason for this will be brought out in due time. See Chapter XII, pp. 227–228.

money," the failure to recognize which has led some of the proponents of the quantity theory into difficulties. This is the distinction between the demand *schedule* for money and demand *within the schedule*. A demand schedule gives a complete picture of the demand situation with respect to a given good. It shows the amount of that good which would be demanded at a whole series of different prices or values. If that demand schedule remains unchanged, it is perfectly true that any change in the value of the good must result from an alteration in the conditions of supply. Suppose, however, that the whole demand situation has changed. Let us say that the demand for diamonds having increased, the price of diamonds rises. Demand, in this sense, can be understood only as referring to the entire demand schedule for diamonds. Buyers want diamonds more than formerly, and more diamonds will be demanded *at each of the series of prices in the demand schedule*. The same holds true for money. If the demand schedule for money remains unchanged, it is true that changes in the value of money will tend to be inversely proportional to changes in the quantity. Money differs from most economic goods merely in the respect that the changes in value tend to be exactly proportional to changes in the quantity. This simply means that, with a given demand schedule for money, a change in the quantity of money will extend or curtail the demand within the schedule in exact proportion to the increase or decrease in quantity. If individuals have adjusted themselves to certain habits with regard to the holding or spending of money, they will hold and spend the same proportions if the money at their disposal is doubled as they did before the increase. Thus, if the amount of money available is doubled, and no change in the attitude of individuals toward the holding and spending of money (i.e., no change in the demand schedule for money) takes place, just twice as much money will be spent for goods as before, prices will tend to double,

and the value of money will tend to fall to one-half of its former worth.

But there is no reason for thinking that the opinions of people as to the relative amounts of money they should hold and spend will not be subject to change. In fact, there is very good reason for believing that they do change rather frequently, and such changes in the demand schedule for money do affect its value—in terms of the equation of exchange—by altering the velocity of circulation, *v*. At certain times and for various reasons the desire of individuals for money to hold as money increases and they make the increase effective by holding a larger part of their incomes in the form of money and spending a smaller part for goods. On the other hand, the owners of goods who desire to increase their holdings of money will offer more goods for a unit of money than formerly. Both these actions will result naturally in a fall in the prices of the goods or, in other words, in an increase in the value of money. This will be evidenced by a decrease in the velocity of circulation of money as people will be spending less than the usual amounts of money for goods and holding a larger proportion than usual in the form of money.

All this assumes, of course, that there is no change in the quantity of money. The effect of an increased demand for money may be entirely offset by an increase of sufficient amount in the supply. This, however, in no way alters the effect which the increase in demand has exerted on the value of money, for if the demand had remained the same and the supply had increased, the value would have fallen instead of remaining stationary. Demand and supply are forces which work in opposite directions, an increase in demand tending to raise value, and increase in supply tending to lower it. It is obvious, then, that simultaneous increases or decreases in both demand and supply will tend to offset each other and leave value unchanged. In order to study the

effect of either force, we must assume the other to be constant for the time being. This is what we have done in the case of the demand for money. Assuming no change in the supply or quantity, we have shown that an increase in the demand for money will cause its value to rise. In the opposite fashion, it could be shown that a decrease in the demand for money would cause its value to fall. We also showed that, if no change took place in the demand schedule for money, an increase or decrease in the supply would cause a proportional decrease or increase in the value. Actually, both the forces of demand and of supply exert their influence upon the final determination of the value of money.

Absolute, relative, and effective changes in the demand for money.—The demand for money is made effective only by offering goods or services in exchange for it. If this demand is to remain constant, not only must the production of goods remain unchanged, but the total quantity of goods produced must actually be offered in exchange for money at approximately the same rate during successive periods. As a matter of fact, this may not occur. At times, goods may be withheld from the market for considerable periods of time, while again not only goods produced during a given unit of time, but many goods held over from previous periods as well, will be offered in the market in exchange for money. These changes in the effective demand for money result in considerable changes in the velocity of circulation of money with a consequent effect upon its value which may or may not be offset or augmented by changes in either the amount of money or the quantity of goods and services produced.

In analyzing the nature of the demand for money, it has been noted that both the total quantity of goods produced and the attitude of individuals toward the buying and selling of those goods goes to determine the effective demand for money. In this connection, we shall make a distinction be-

tween *relative* and *absolute* changes in the demand for money corresponding, after a fashion, with Professor Taylor's distinction between relative and absolute changes in the value of money noted above (p. 180). An absolute change in the demand for money is one which results from a change in the attitude of individuals (or business houses) respecting the proportion of their incomes which they desire to hold in the form of money, without regard to the amount of goods produced for the market. A relative change in the demand for money is one which results from an increase or decrease in the amount of goods available for exchange against money without any reference to the attitude of individuals or business firms toward the relative desirability of holding money, or exchanging it for goods. It goes without saying that both relative and absolute changes in the demand for money play a part in causing changes in the effective demand. Thus, business men may desire money to hold more intensely than before and be ready and able to offer more goods in exchange for it. This would be an example of an absolute increase in the demand for money which would tend to raise its value. If, at the same time, the amount of available goods increased, still larger amounts of goods would be offered in exchange for money, and the value would tend to rise farther than if the relative demand for money had not also increased. On the other hand, a decrease in the amount of available goods—a decrease in the relative demand for money—at such a time would tend to offset the increase in the absolute demand for money and to prevent the effective demand from increasing as much as it otherwise would have done.

A critical estimate of the quantity theory.—To return to the quantity theory once more, how much credence can be given to it in view of the preceding discussion? The answer to this question is that the quantity theory, when properly understood, gives a sound explanation of the normal

value of money. The meaning of normal value as applied to money we shall take as identical with that which is given for normal price with reference to goods by Professor Taylor:[5] "It (normal price) means *a price which is always tending to prevail during a given period as a result of the action of those forces which operate throughout the period,* especially the larger of those forces. But, though always tending to prevail, we should note that, because of the influence of temporary forces, *normal price seldom if ever does prevail.*" The normal value of money, then, is the value of money which is always *tending* to prevail, and we may safely say that this value will be inversely proportional to the quantity of money, subject to the limitations noted with respect to increase of population and productivity. The reasons for adopting this attitude have already been hinted at. The real purpose of money is to serve as a medium of exchange and, as such, its final use is only obtained by spending it for other goods. While it is true that individuals practically always hold a certain amount of money as such, and while the amounts of money that individuals desire to hold increase and decrease from time to time in view of temporary changes of attitude, nevertheless, the amounts which they so desire to hold are continually *tending* toward a constant proportion of their incomes at the lowest point which is compatible with safety and convenience. Looked at from the side of goods, we may say that all goods produced for the market tend to be sold and not held for long off the market. If we assume production to be constant, population constant, and no far-reaching changes in the organization of the monetary system, we shall be safe in adhering to the quantity theory. As a long-run theory of the normal value of money, it will hold water.

Statistical demonstration of the theory.—While any statistical demonstration of the quantity theory presents ob-

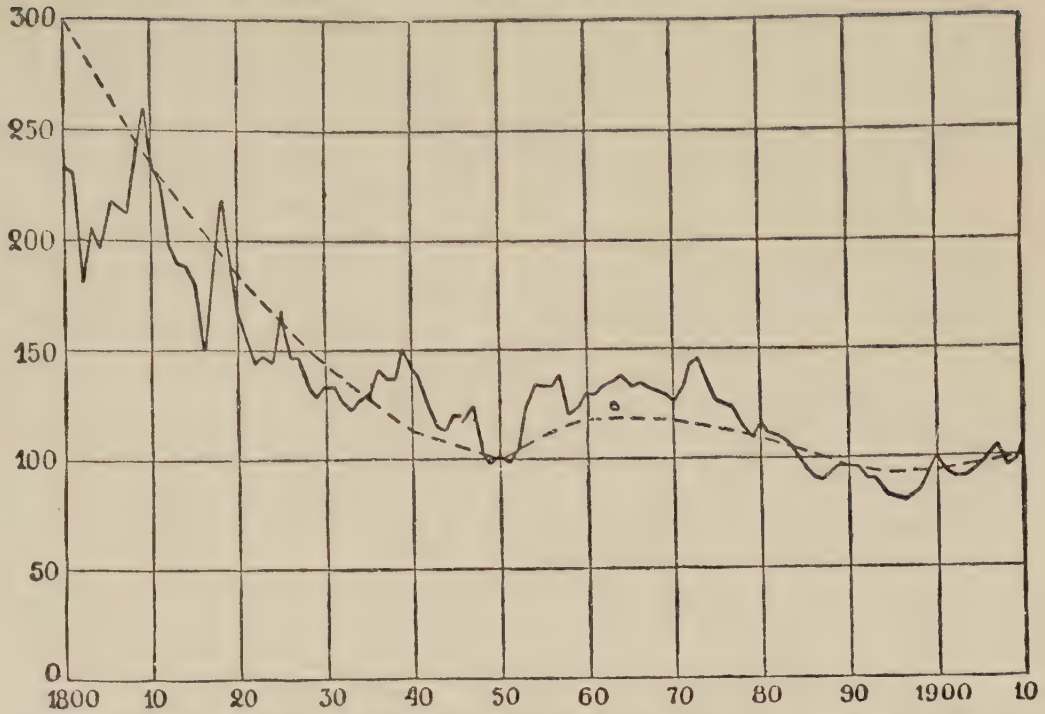
[5] *Principles of Economics*, p. 299.

vious difficulties, an ingenious and fairly successful attempt at such a demonstration has been made by Professor Gustav Cassel of the University of Stockholm.[6] Cassel held the opinion that the quantity theory could be demonstrated statistically in satisfactory fashion only on a world basis. His object, then, was to compare changes in the world price level with changes in the gold stock of the world. Estimates of the world's gold stock from year to year were available, but the difficulty in obtaining an index of world prices is apparent. The price index finally used was Sauerbeck's, an English index, which was chosen because the price quotations from which it was constructed were largely London quotations and the London markets were practically world markets. Further, England was a free trade country and maintained an effective gold standard throughout the period studied.

Having decided upon the data to be employed, the next step was to discover a method of using them. Cassel observed that the price level, as shown by Sauerbeck's index, was approximately equal in 1850 and in 1910. He inferred from this that the increase in the world's gold stock between those two years had been just sufficient to provide for the elements of economic growth and increase in population. Assuming the rates of these increases to be fairly regular, he was enabled to calculate a normal gold supply for each year from 1850 to 1910 inclusive, the supposition being that a regular rate of increase in the gold supply would have served to maintain a level trend of prices during the period. The calculated normal increase in the gold supply was 2.8 per cent per year. Since the actual gold supply increased by more than 2.8 per cent in some years and less than that amount in others, Cassel was of the opinion that variations in the actual rate of increase in the supply of gold above

[6] The presentation of this demonstration is to be found in Cassel, *A Theory of Social Economy*, Chapter XI.

CHART VI. General Level of Prices and Relative Gold-Supply



Source: Gustav Cassel, *A Theory of Social Economy* (New York, 1924), p. 448. Reproduced by permission of Harcourt, Brace & Company.

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and below the normal would account for changes in the trend of the price level throughout the period. In order to test this hypothesis, he divided the figure representing the actual gold supply of each year by the corresponding calculated figure for the normal gold supply. These percentages were then termed the relative gold supply figures for the 60 years of the period. Presumably, changes in a line drawn through the charted points representing the relative gold supply of each year should indicate changes in the trend of world prices.

The final result of the investigation was obtained by charting the figures showing the relative gold supply on a chart showing changes in the price level as obtained from Sauerbeck's index. The chart showing both lines is reproduced here and shows that the line representing the relative gold supply follows the same general course as would a trend of the price index throughout the period. Although the line on the chart runs back as far as 1800, Cassel does not stress the period before 1850, as he is uncertain about the quality of the price index used for the earlier period, Sauerbeck's index extending back to 1846 only.

The result of Cassel's investigation is quite in line with the conclusions which we have drawn in the earlier sections of the chapter. Although the data used in the investigation were not perfect, there seems to be little doubt but that they were utilized in such fashion as to show a rather close relationship between changes in the relative gold supply and the long time trend of the price level. In other words, Cassel's demonstration gives a good indication of the soundness of the quantity theory as a long run theory of the normal value of money.

Conclusion.—But the normal value of money, while always tending to prevail, seldom if ever does, in fact, prevail. Individuals hold money at times, instead of spending it, for considerable periods. At other times they spend more for

goods and hold less as money. Aside from a persistent upward trend in the production of goods, actual production is subject to irregular upward and downward fluctuations. Both the attitude of individuals toward the proportion of their incomes that they desire to hold as money and the actual amount of goods produced for the market influence the demand for money, and since both these factors are subject to irregular changes, it follows that, in the short run, changes in the demand for money play a much more important part in bringing about short time changes in its value than some of the quantity theorists might have us suppose. We cannot, therefore, put the demand for money to one side as being practically constant when we are dealing with short run changes in the value of money.

Up to the present point, we have been dealing with a simple set of conditions, namely, a gold currency only and no banking system. It will next be necessary to introduce a few complications into the problem by studying the effects of credit money on the value of the standard. In the chapter to follow we shall consider the effect of the introduction of one such type of money—government credit money—on the value of gold.

QUESTIONS FOR STUDY

1. State the quantity theory of money.
2. What is the nature of the quantity theory controversy?
3. What is the equation of exchange, and what is its significance?
4. May one believe the equation of exchange to be true without adhering to the quantity theory? Explain.
5. "The quantity theorist usually assumes that the factors T and v in the equation of exchange remain constant." How far are these assumptions justified as regards T? As regards v?
6. Distinguish carefully between the *demand schedule* for money and *demand within the schedule.* What sort of changes in demand will affect the value of money?
7. Is there any good reason for believing that the demand schedule for money always remains unchanged? Give examples to support your answer.

8. What is the distinction between relative and absolute changes in the demand for money? What effect does each of these types of change have on the effective demand for money?

9. "The quantity theory of money is a sound theory of the normal value of money." What is meant by *normal* value in this statement?

10. Show why the quantity theory may be considered sound as a theory of normal money value when it is not sound as an explanation of short-run changes in the value of money.

11. Describe the method used by Professor Cassel in his attempt to demonstrate the quantity theory statistically.

12. Do the results of Cassel's demonstration bear out the contention that the quantity theory is a normal value theory?

CHAPTER XI

GOVERNMENT CREDIT MONEY AND THE VALUE OF THE STANDARD

The supply of money and the demand for the standard.—If we alter the conditions postulated in Chapter IX—a uniform gold currency—by assuming the introduction into the monetary system of a quantity of government paper money which is redeemable in gold upon demand, but which is not backed by a 100 per cent gold reserve, the result will be an increase in the quantity of money in the country.[1] Looked at from the point of view of the country as a whole, the result of the issuance of credit notes by the government may be considered in the light of a decrease in the demand for the standard metal (gold), since a smaller amount of gold is necessary to carry through a given body of transactions than formerly. But to individuals, the result is merely an increase in the accepted means of payment and any effect upon the purchasing power of money, resulting as it must from the actions of individuals in the sale and purchase of goods, will necessarily arise out of the increase in the supply of money in relation to the demand for it by individuals. In other words, in so far as it has any effect on the value of money, the demand of individuals for money cannot be distinguished into a demand for gold coin and a demand for

[1] We must leave out of account until later the possible results of loss of gold to foreign countries. During the present discussion, the country postulated will be considered as isolated from other countries in so far as money movements are concerned.

credit money, as long as the credit money is a generally accepted means of payment. With a few insignificant exceptions, it makes no difference to an individual who is being paid for goods or services whether he receives gold coin or government notes in payment, providing he wants the money received to buy other goods and not for some non-monetary purpose. The demand for money being a demand for satisfactory means of payment, its value must be determined by the relation of that demand to the total supply of means of payment, not merely to the total supply of monetary gold. In studying the effects of credit money on the value of the standard, therefore, we shall consider the introduction of such money into a system as constituting an increase in the supply of money, although this may result in a decrease in the demand for the standard metal.

The effect of government notes on the value of the standard. —If, then, the government issues credit notes which are redeemable on demand, the increase in the supply of money resulting therefrom will tend to raise prices to a degree which is proportional to the increase in the amount of money. This tendency may be entirely or partly counterbalanced, however, by an increase in the demand for money. Suppose that, before the issuance of paper money by the government, the metallic money which had constituted the bulk of the exchange medium had been a bulky and inconvenient type of coin similar in nature to our present silver dollar. There can be no question but that exchange would have been handicapped and production kept down to relatively small proportions because of the difficulties encountered in trying to use these bulky coins to mediate exchanges. Further, individuals would find the holding of any considerable stocks of such money inconvenient and would hence keep on hand as little of it as possible under ordinary conditions. Suppose that, under such circumstances, the government decides to issue paper promises to pay this metallic money upon de-

mand, and to maintain a reserve of 50 per cent for purposes of redeeming such of the paper notes as may be presented for conversion into metallic coin. The almost inevitable outcome of this procedure on the part of the government would be a strong increase in the demand for money. Individuals would be inclined to hold larger proportions of their incomes, on the average, in the form of money than formerly and would hence stand ready to offer more goods for money than before. In addition, production would be speeded up by the increased facility with which exchanges could be consummated, and, for this reason also, larger amounts of goods would be available to offer in exchange for money than formerly. This combination of absolute and relative increases in the demand for money would be likely to increase the effective demand to such an extent, under the circumstances depicted, as to offset entirely the effect of the increased supply of money. If this should occur, there would be no change in the value of the standard coin.

Our conclusion with respect to the effect of government credit money on the value of the standard is, then, that the issuance of such credit money exerts an initial tendency toward a rise in prices (a fall in the value of money) through increasing the supply of money, but that this tendency may be offset wholly or in part by a corresponding change in the effective demand for money. What the exact effect would be in any given instance depends upon a variety of conditions. On the supply side, the increase in the quantity of money will depend upon the relative size of the specie reserve which the government decides to retain for the redemption of the notes which it issues. Obviously, a 25 per cent reserve will permit a greater increase in the quantity of money than a 50 per cent reserve, and hence there will be a stronger tendency for the value of the monetary unit to decrease in the former case than in the latter. On the demand side, the convenience of the new credit currency in

comparison with that of the standard money, and the state of development of industry, will both influence the effective demand for money under the new conditions. If the standard money is convenient and industry highly developed, there will probably be little increase in the demand for money upon the introduction of the credit notes. On the other hand, where the opposite conditions exist, as in the hypothetical example just given, the effective demand for money will probably increase greatly. In any one instance, the best that can be done in the way of prediction is bound to be but a rough approximation after taking intelligent cognizance of the factors mentioned.

The effect of credit issues of fixed amount.—If the government issues a specific amount of paper money, holding a fixed reserve against it, and refuses to issue any additional notes upon the acquisition of more gold, such notes will come to constitute a portion of the permanent monetary stock of the country, and cannot effect further changes in the value of the monetary unit after the initial effect of their issuance has worked itself out. This is the case with United States notes in our own monetary system at the present time. Additional notes are not issued under any circumstances, and a fixed gold reserve of $150,000,000 is kept behind the outstanding issue. These notes form but a small portion of the total stock of money and have no effect on current changes in the value of money in this country.

Metallic credit money and the value of the standard.—We have spoken thus far of paper money only, as though that were the only type of credit money which a government might issue. As will be recalled from an earlier discussion, however, it is possible for the government to issue metallic money which is made from an inferior metal, is short in weight, and is hence a type of credit money. The subsidiary money of most gold standard countries falls into this class, and, in the United States, we find the silver dollar as well.

As far as subsidiary money is concerned, there is likely to be little effect on the value of the standard when such money is issued. It is ordinarily coined and put into circulation in a certain ratio to the population, or may be merely exchanged by the government for other forms of money at the request of business men or banks. It may therefore be considered as part of the permanent stock of money. While the amount of it outstanding will vary somewhat with the needs of business, the total of subsidiary money is such a small fraction of the entire monetary stock that any effect it might have on the value of the standard would be inconsiderable.

The position of silver dollars in the monetary system of the United States is little different from that of United States notes as regards their effect on the value of money. The number of silver dollars is not subject to increase, and, although no gold reserve is retained specifically for their redemption, they are indirectly convertible into standard money. They may thus be considered as part of the permanent monetary stock of the country, which exerts an influence on the value of money only through the fact that it does go to make up a portion of the supply. As long as the amounts of such credit money as silver dollars and United States notes remain practically stationary, they can have no direct effect on current changes in the value of the dollar.

A distinction should be made, however, between metallic credit money and that made out of paper for the following reason. The value of the paper money can never go above that of the gold in which it is kept redeemable, while it is possible to conceive of a case in which the value of a metallic credit money might do so. Let us suppose, for example, that a given country has a gold standard of value, but that the people prefer silver coins to gold. The government therefore issues short weight silver coins and keeps a reserve of, say, 40 per cent in gold to maintain the convertibility of

the silver coins. It would seem, at first glance, that the government might put into circulation two and one-half times the amount of its gold reserve in silver coins. Whether this amount could be kept in circulation, however, or better, whether it could be kept in the money stock or not, would depend upon the value of the silver content of these coins in relation to their face value. If 16 times as much silver were put into the silver coins as gold was contained in the unit of value, while the market ratio of silver to gold stood at 20:1, the value of the silver coins would continue to be less as metal than as money. But the larger purchases of silver by the government to make these coins, together with the industrial demand for that metal, might drive the price of silver up to a point at which the market ratio to gold was, say, 15:1. If this should happen, the silver in these coins would be worth more than their face value as money, and they would disappear from the money stock. Therefore, if the government wanted to be sure to be able to issue and keep in circulation the full quantity of silver money permitted by its supply of gold, it would have to see to it that the silver coins were sufficiently short in weight so that no contingency of the sort mentioned could possibly arise. This consideration is of theoretic importance only, however, except in some gold-exchange standard countries where the domestic currency is of silver which, in times of demand for this metal, may rise in value above the value of the gold into which it is convertible with a consequent disruption, or partial disruption, of the system.

Irredeemable government paper and the value of money.—Although government credit money is kept either directly or indirectly convertible into the standard of value in the ordinary course of events, occasions have occurred not infrequently when some crucial event, usually a great war, has caused one or more countries to depart from a fixed metallic standard and cease to redeem paper money in gold upon de-

mand for longer or shorter periods. When such an occasion takes place, according to the views of some monetary theorists, the value of money in a country which has suspended specie redemption is entirely divorced from the value of gold, so that ample opportunity is given to demonstrate the reliability of the quantity theory. We shall have occasion to see, however, that the views of these theorists are not, in fact, justified.

In the period following the suspension of specie redemption by a country, two facts are, in general, to be observed. First, the quantity of irredeemable money issued by the government increases rapidly as time goes on, and, second, the level of prices also increases rapidly. Casual observation of these facts may lead one to conclude that the rise of prices is a direct result of the increase in the quantity of money. There is much truth in this notion, but not in the sense in which the quantity theorists are apt to conceive it. The reason for this will appear as we proceed.

When a government sets out on an irredeemable paper basis, its currency may have a wide circulation on a level of value that is very nearly at par with that of gold. For the great majority of individuals, paper money with full legal tender powers is just as acceptable as gold coin, if not more so, as long as they have confidence in the government's ability and willingness to redeem such money in gold. Even when redeemability is discontinued, the element of confidence in the government continues to play an important part. If it appears that the government is in a sound position and that it will shortly be able to resume specie payments, little or no depreciation may appear in the value of the paper money as compared with gold,[2] while, if the pros-

[2] Since the paper notes of the government are legal tender, and so must be accepted at par, they cannot depreciate, technically. Instead, gold goes to a premium as measured in paper money. Fundamentally, however, the notes are depreciated with respect to their former value in gold as soon as a gold premium appears.

pects of redemption are not bright, the paper money will depreciate markedly in value as measured by the premium on gold. If, then, the level of prices fluctuates in general concordance with the premium on gold, we may safely accept the conclusion that gold continues to be the real standard of value, in terms of which the value of the paper money is measured.

Illustration from our Civil War experience.—In the history of our own country, there was a strong correspondence between the changes in the price level and the premium on gold during the Civil War period, at which time the United States was on an irredeemable paper basis. In an illuminating study of this period, Dr. W. C. Mitchell plots the lines representing commodity prices and the premium on gold and concludes his discussion of their relationship as follows:[3] "In all these movements from 1862 to 1865 the lines representing the premium and the median of relative prices correspond so well that one cannot resist the conclusion that these changes are mainly due to a common cause, which can hardly be other than the varying esteem in which the notes of the government that constituted the standard money of the country were held." The price data used by Mitchell were necessarily somewhat meager and included only commodities, but, even so, the results of this study tend to reënforce the conclusion of the preceding paragraph that gold continues to be the real standard of value and the measure of value of other commodities even when a country has ceased to redeem its currency in gold, and that the value of the irredeemable currency depends chiefly upon confidence in the ultimate ability and willingness of the government again to redeem its notes in the real standard of value.

Irredeemable paper and the quantity theory.—This is quite different from the conclusion arrived at by some of the quantity theorists who would have us believe that the quan-

[3] *A History of the Greenbacks*, p. 279.

tity of irredeemable money is chiefly responsible for the increase in the price level. But surely, it will be contended, the increased quantity of paper money at such a time must play some part in the rise of prices which occurs. This can hardly be denied, but the theorist who explains the rise of prices on the basis of the increase in the quantity of money alone would be hard put to it to show why, "in the six months following the passage of the third legal tender act (of the Civil War), when notes were being issued in accordance with its provisions, the value of the currency appreciated in a marked degree." [4] In general, of course, the increased quantity of money does permit a bidding up of prices by individuals, but it also helps to increase prices by lessening the confidence of the people in the ultimate ability of the government to redeem its notes in gold at the old rate. On the other hand, an increase in confidence may more than offset the effect of the increased quantity of money as shown in the statement quoted above.

The demand for irredeemable paper.—These changes in confidence which accentuate the intensity of the rise of the price level at one time, and more than counterbalance it at another, must be considered in the light of changes in the demand for the irredeemable money, and changes of demand which exert so much influence on the value of money cannot well be left out of consideration. It is true that the conservative quantity theorist protects himself somewhat by asserting that other things (the most important of which is demand) must remain the same. He usually proceeds, however, on the assumption that they do remain the same, a procedure which is entirely unwarranted in view of the important part played by these "other things" at such times.

It is a fact frequently overlooked by exponents of the quantity theory that the increase in the supply of paper money is, in itself, very likely to have an important effect

[4] *Ibid.*, p. 208.

upon the demand for it. This would not necessarily be the case if the value of such money were determined entirely apart from the value of gold. It is the fear that gold payments will not be resumed, or that resumption will take place on a depreciated basis, which causes the holders of irredeemable paper money to hesitate to hold it, and so offer more of it in payments for goods than before the redemption in specie was suspended, while the owners of goods are less anxious to dispose of them for money and will do so only at higher prices. Thus, in Germany, in the period just prior to the stabilization of the mark, wage earners, upon receiving their pay, would hasten to spend it all before it depreciated further in value with the result that the demand for money to hold was greatly decreased. It was realized that there was no possibility of redemption in gold at the old rate, and everyone was therefore anxious to get rid of his money before it became less valuable, or entirely valueless. Unquestionably, any increase in the confidence of the people of Germany in the ability and intention of the government to redeem its paper issues at some higher gold value than had been generally expected would have led to an important increase in the demand for money to hold and a possible increase in its value even in the face of an increasing quantity.

This dependence of the value of irredeemable paper money on the possibilities of its redemption has been admirably summarized by Mitchell [5] as follows: "Greenbacks were notes of the government of the United States, and as such their value—like the value of the notes of a private person—depended upon the credit of the issuer. If confidence in the government's ability ultimately to redeem its notes had been entirely destroyed, the paper would have depreciated to the level finally reached by the Confederate currency. On the other hand, if the credit of the government had suffered no

[5] *Ibid.*, pp. 198–199.

diminution, its notes would have depreciated little, if at all. Fluctuations between these two limits—par and zero—followed the varying estimates which the community was all the time making of the government's present and prospective ability to meet its obligations."

Conclusion.—We have dwelt at some length on the forces which enter into the determination of the value of irredeemable paper money chiefly because of the frequently observed tendency on the part of some monetary theorists to overemphasize the effects of increases in the quantity of such money upon its value. The relative soundness of the quantity theory as a theory of the normal value of money has already been pointed out. Attention has also been called to the fact that changes in the demand for money are largely a result of dynamic or changing conditions which influence the attitudes of individuals regarding the relative desirability of holding money as such or spending it for goods. No conditions, perhaps, are more dynamic than those of the periods in which countries have conceived it to be necessary, or even desirable, to substitute irredeemable paper money for gold or for paper money redeemable in gold. Accordingly, under no conditions does the demand for money play a more important part in influencing its value than under those which have just been depicted. The quantity theory of the value of money, to repeat, is a normal value theory. To attempt to demonstrate its soundness under highly abnormal war conditions is bound to lead the theorist into difficulties.

QUESTIONS FOR STUDY

1. What is the effect of government credit money on the supply of money? On the demand for the standard of value?
2. Will the introduction into circulation of government credit money always result in an increase in general prices? What factors will affect the degree to which a rise in the price level will occur?
3. Under what circumstances would an increase in the quantity

of government credit money be accompanied by a corresponding increase in the general level of prices?

4. Compare paper with metallic credit money as regards the possibility of each type disappearing from circulation if issued in too great quantities.

5. "When a country issues irredeemable paper money in ever-increasing quantities, prices tend to rise rapidly." Is the increase in prices to be explained solely on the basis of the increase in the quantity of money? Explain.

6. What has the question of confidence to do with changes in the price level when a country is on an irredeemable paper basis?

7. "It is possible for prices to fall under an irredeemable paper régime even though the quantity of money is being increased." Does this fact disprove the quantity theory as properly understood?

8. How may the increase in the quantity of irredeemable paper money affect the demand for it?

9. Why is an attempt to demonstrate the quantity theory on the basis of an irredeemable paper money régime almost sure to prove futile?

BIBLIOGRAPHICAL NOTE

The question of the value of money under war conditions is so complicated that a special note will be inserted at this point to supplement the Bibliographical note at the end of Chapter IV. There has been a profusion of literature on this question since the Great War, so that only a few selected works will be cited.

J. van W. de Bordes, *The Austrian Crown* (London, 1924), and E. L. Dulles, *The French Franc,* 1914–1928 (New York, 1929), are excellent studies of particular currencies. More general in nature are G. Cassel, *Money and Foreign Exchange after 1914* (New York, 1923), R. G. Hawtrey, *Monetary Reconstruction* (London, 1923), and J. M. Keynes, *Monetary Reform* (New York, 1924). Outstanding among the studies of the Civil War period in this country are W. C. Mitchell, *A History of the Greenbacks* (Chicago, 1903), and *Gold, Prices, and Wages under the Greenback Standard* (Berkeley, 1908), by the same author.

To those who are particularly interested in the monetary literature of the period following the Great War, an excellent bibliography in Miss E. L. Dulles' *The French Franc,* cited above, is strongly recommended.

CHAPTER XII

BANK CREDIT MONEY AND THE VALUE OF THE STANDARD

Introduction.—Up to this point we have been concerned with the determination of the value of money under conditions of greater simplicity than those which actually exist. In order to bring our postulated monetary system more nearly into accord with reality, it will be necessary, in the present chapter, to introduce a banking system and the use of bank credit money in the form of bank notes and checks. Inasmuch as there is a fundamental similarity in all forms of credit money, it may seem unnecessary to spend much time on the subject of bank credit money and its influence on the value of the standard in view of our previous discussion of the effects of government credit money in this connection. The influence of bank credit money on the value of the standard, however, is quite different in some ways from that of credit money issued by the government, so that it will be desirable to enter into the question in some detail.

The effect of a banking system on the value of money.—Quite apart from the forms of money which arise out of the banking system, such a system itself effects a considerable influence on the value of the standard money. This influence arises out of one of the functions of the banking system which is to gather together the temporary surplus funds of the community and lend them out to business men who are in need of short time loans. The result is a tendency toward a greater stability in the demand for money to

hold than would exist if there were no banking system. To bring this point out more clearly, let us compare the situation under our first hypothesis—a single gold currency and no banking system—with that which exists when a banking system is present. If there were no banking system, each individual and business man in the community would hold his reserve to meet contingencies and other expenditures in the form of gold coin. Suppose, then, that half of the people of the community should decide to hold a larger part of their incomes in the form of money than formerly. This would increase the demand for money and tend to result in lower prices, as the individuals in question would, for a time, spend a smaller proportion of their incomes for goods than before and so would decrease the quantity of money actually offered for goods in the market. In a community with a banking system, the effect of a similar absolute increase in the demand for money would be much less marked. The individuals whose demand for money had increased would keep the money they were holding in the form of deposits with the bank, and the bank would hold only a comparatively small part of these deposits in the form of cash and would lend out the remainder to individuals in the community who wanted more money, not to hold, but to spend. Of course, if the increase in the demand for money to hold were general throughout the entire community, the banks would not find borrowers for their deposits and the value of money would tend to increase as a result of the general increase in the demand for it. But, so long as there are some members in the region who desire more money to spend than they themselves have available, the banks will be able to lend out their deposited funds and keep the demand for money to hold from increasing as greatly as would otherwise have been the case.

Besides this influence on the value of money, the banks are, of course, responsible for the existence of bank notes

and the check currency, the use of which types of money also may produce some effect on the value of the standard money. Whether or not this effect is identical with that produced by the introduction of government credit money is the question which we shall attempt to answer in the remaining pages of the chapter.

Elastic bank note issue assumed.—In studying the effect of bank note issues on the value of the standard money, we shall, as before, assume a country without outside connections, with a standard money of gold coin, and with at least one type of redeemable government credit money. In addition, we shall now suppose the existence of a single large bank with branches with the power to issue notes secured by commercial paper up to any amount, provided that a reserve of standard money equal to 25 per cent of the notes in circulation is maintained at all times. Thus we shall have in our assumed monetary system an elastic system of note issue with a possible expansion of four times the amount of standard money available as reserve. Under these postulated conditions, the bank proceeds to issue its notes which are redeemable in gold at any of its offices.

For a time the bank will receive deposits in gold coin, but when deposits are withdrawn, assuming that the bank is anxious to build up its gold reserve, payment to the depositor will be made by the bank in bank notes until, finally, practically all of the gold coin of the country except that held against government credit money will be lodged in the vaults of the bank and bank notes will constitute the chief circulating medium of the country. As long as the amount of notes outstanding is no greater than the gold reserve, there will be no economy in the use of gold and the notes will amount to nothing more than gold certificates as a practical matter. This situation, however, will not long continue. Presumably the bank has been building up its gold reserve so that it might expand its note issues and increase its profits

by lending out notes to borrowers. The notes resulting from such loans will constitute an increase in the total amount of money, and this increase might conceivably continue until the total of notes allowed by law had been issued, after which the stock of money would be greater by four times than before any notes were issued.

Effect of such note issues on prices.—In spite of the increase in the stock of money, assuming expansion of note issues has occurred as suggested above, there is no likelihood of a corresponding rise in prices if the bank has made its loans for the purpose of assisting in the production or marketing of goods. To illustrate, a manufacturer, let us say, desires additional funds to assist him in the production of goods for the market. He goes to the bank and borrows $100,000 for this purpose. The bank grants him the loan on the understanding that he will repay it from the funds received when the goods he intends to manufacture are sold. The manufacturer then receives the proceeds of his loan in the form of bank notes. Some of these notes he will use to pay his employees' wages, some to buy material, etc. The notes are thus put into circulation. In the course of a reasonably short time the goods are finished and sold. The manufacturer receives payment for them, pays off his loan at the bank, and an amount of notes corresponding to the amount borrowed is retired from circulation.

The fact that the notes are in use for the two or three months during which the manufacturing concern is producing and selling its goods increases the quantity of money during that period and may cause some slight increase in prices. This should not be pronounced, however, and the return of the money to the bank after the goods have been sold will result in contracting the quantity of money to a like extent, with a corresponding tendency toward a fall in prices. If this single transaction were the only one of its kind, we

should then expect to find little effect on prices from the issuance of bank notes of the elastic type. But suppose that, as soon as the bank has received the notes in repayment of the loan, it immediately makes another loan of similar amount. Once again the borrower will be using the notes to pay wages and to buy materials. The laborers and the sellers of the raw materials will, barring a change in their attitude toward the holding of money, be spending these notes from time to time to buy goods, and once again there will be a tendency toward an increase in prices, which will again be counteracted, in part at least, by the increase in the amount of goods sold in the market. The result of such procedure on the part of the bank will be to keep the notes loaned out steadily, which amounts to an increase in the amount of money in the hands of individuals paralleled by an increase in the amount of goods sold in the market. The increased flow of goods constitutes a relative increase in the demand for money which will counterbalance to a large extent the increase in the supply of money. If, for any reason, the production of goods slows down, borrowers will repay their loans and refrain from requesting new ones to some extent and the note issues of the bank will be decreased to a corresponding degree, so that the relative decrease in the demand for money will be accompanied by an offsetting decrease in the quantity. In this respect, elastic bank note issues have a different effect on the value of the standard than the credit notes issued by the government. When the bank, in our illustration, increased the amount of notes issued, it was as a result of a demand for loans to produce goods. On the other hand, additional issues of government credit money, which is usually issued rather as a result of a fiscal than of a commercial demand, increases the power to purchase goods without adding to the stock of goods, and the tendency for prices to rise is therefore more

marked than in the case of bank notes with the elastic quality, assuming no absolute change in the demand for money in either instance.

Conditions under which note issues raise prices.—In spite of the decided tendency on the part of an elastic system of note issue to adjust the quantity of money to relative changes in the demand for it, some slight increase in prices may occur, even if there is no absolute change in the demand for money. This is true because the added amount of money is in the hands of the public during the life of the loan, while the additional goods do not come on the market until practically the time at which the loan matures. During this interval, the added amount of money acts to raise prices. The extent of this action will depend upon the length of the life of the loan and the proportion which the loan forms of the total value of the goods when marketed. The greater these two quantities, the more marked will be the upward effect upon prices. A loan made for crop harvesting purposes only would have slight, if any, effect in raising prices, since it would amount to but a fraction of the total value of the crop and would be of short duration, while a loan for the purpose of carrying a crop, or part of it, for a period of nine months or a year would exert a very considerable upward tendency on prices, not only because of the relatively long life of the loan, but because the amount of the loan would constitute a large proportion of the value of the goods. The same holds true for loans on real estate running for two to five years or longer. During this time, the bank notes are added to the general money stock of individuals and tend to make them ready and able to offer more money for goods than formerly, barring an absolute change in the demand for money during the interval.

The foregoing discussion casts some light upon the effect on the value of money of the investments in securities which a bank may make with credit money. If the bank in our

illustration purchased long-time mortgages or other securities with some of its own bank notes, the quantity of notes so used would constitute an addition to the money stock of the country which would continue to exert its effect upon prices as long as the bank held the investments in question. By selling these investments to individuals, the bank will decrease the amount of money in the hands of the public, for, under the assumed conditions, these securities must needs be paid for with the notes of the bank. It is thus clear that the bank would have considerable control over the quantity of money which was held by the people of the country if it desired to exert its efforts in this direction.

Note issues and absolute changes in the demand for money.—So far we have assumed that there have been no absolute changes in the demand for money. From the point of view of normal money value theory, this assumption is justified, but there may actually be very considerable changes in this factor from time to time. If individuals generally desire more goods and less money (to hold) under certain conditions, they will offer less goods for money than formerly and prices will rise. If such an attitude is accompanied by an increase in the amount of bank notes, the result will be a more pronounced rise in prices than would otherwise have occurred. Suppose that consumers generally are desirous of increasing their purchases of goods relatively to their holdings of money. Their increased demand for goods will start a rise in prices. Merchants and dealers, observing the strength of the consumer demand, will themselves desire to increase their stocks of goods in more than the usual proportion, not only to sell immediately to consumers, but to build up inventories which they hope to sell somewhat later on at higher prices. If they are enabled to borrow at the bank to acquire these goods, the increase in the amount of bank notes will assist in the farther rise of prices, since goods are purchased with these notes which are not intended for im-

mediate sale, so that the life of the loan will probably have to be extended by renewing it when it comes due. Also, the notes get into the hands of other dealers, laborers, etc., and, inasmuch as they are spending larger parts of their incomes for goods and holding less as money than before, the rise in prices will be further accentuated.

On the other hand, an absolute increase in the demand for money on the part of consumers will have a reverse effect. They are unwilling to buy goods except at lower prices, and this decrease in consumer demand is transmitted to dealers who then desire to get rid of their surplus stocks in exchange for money, since no higher—and probably lower—prices are in prospect, and their current debts must be paid. If the bank renews the notes of borrowers at such a time, and even grants them added loans if they so desire, the money so obtained is not used to acquire goods, but to pay debts. Some of it doubtless will get into the hands of employees and others not of the business man class, but even these recipients prefer to hold the money rather than to spend it, and dealers must continue to cut prices in order to dispose of goods and get the money necessary to pay back their debts at the bank. Thus, even though the manufacture of goods is actually decreased somewhat, the absolute increase in the demand for money is sufficient to cause its value to rise, even in spite of a considerable possible increase in the quantity of money.

Inelastic bank note issues.—In the previous discussion, we have considered the effect on the value of money of elastic bank note issues only. As for inelastic note issues, such as national bank notes, their effect on the value of the standard is practically the same as that exerted by government credit money. When put into circulation they increase the total quantity of money and, being inelastic, they tend to remain in circulation indefinitely. They thus permanently increase the supply of money and exert a corresponding tendency to

raise prices. It must be remembered, of course, that if the gold stock of the country is large, so that the central bank has large surplus reserves, that institution may meet added demands for money by paying out gold, government notes, or other forms of money which are usually considered inelastic. When loans of such money are paid off, the amount in actual circulation is decreased and all forms of money acquire a certain degree of elasticity. In general, however, it may be stated that note issues which do not provide a proper element of elasticity exert a greater tendency toward decreasing the value of money than do issues which are properly elastic.

Similarity between elastic bank note issues and the check currency.—The relation between the check currency and the value of the standard is practically identical in all respects with that of elastic bank note issues of the type which we have been considering, and it will therefore not be necessary to spend a great deal of time on this phase of the subject of credit money. It has been objected, and by an extremely keen student of the subject, that the check currency cannot be said to constitute money, and it will prove advisable to consider this objection before proceeding to take up the influence of the check currency on the value of money. The objection referred to is as follows:[1]

> A still worse error, which has, unfortunately, been countenanced by many high monetary authorities in recent years, is to suppose that the aggregate of deposits is a kind of money (sometimes it is called "bank money") which should be added to the stock of coin and notes existing at any moment. The individual, no doubt, finds "money in the bank" much the same as "cash in the house," but the aggregate of all the individuals' balances at their banks is only an amount which bankers are liable to pay, but which they could not possibly pay in cash all at one moment. A liability to pay cash is certainly not cash.

If by cash the standard of value as embodied in the standard coin is meant, Dr. Cannan is quite right in assert-

1 Cannan, *Money*, p. 81.

ing that deposits are not cash. But, in that case, neither are notes, which he includes in the monetary stock. He is also correct in his statement that bankers could not possibly pay all their deposit liabilities at one moment. But, again, neither could most bankers pay *all* of their note liabilities in cash at one moment. The Bank of England, it is true, could pay a larger proportion of its note liabilities than of its deposits in gold, but the difference is one of degree and not of kind. There can be no quarrel with anyone who wishes to define money as standard full-bodied coin, although the practice of so doing leads to a narrow and somewhat absurd position if carried to its logical conclusion. However, to include notes as money and exclude checks is nothing short of contradictory, as both bank notes and checks are fundamentally the same in nature.

The confusion which has existed in the minds of some with regard to checks and bank notes doubtless arises from two facts. First, bank notes are usually finely engraved and resemble the paper money of the government in general appearance, while checks have no such resemblance to other forms of paper money. Second, checks generally pass from hand to hand but once, or at most a few times, while bank notes may pass from hand to hand many times before being presented for redemption. These differences, however, are merely on the surface. Checks could be as elaborately engraved as bank notes if it were worth while to bother with it. The other difference is more important, apparently, but not fundamentally. A check will ordinarily be used in but one payment before being deposited by the holder because (1) it is made out to the order of a definite party and has to be endorsed before it can be used in making another payment, (2) it is usually for an odd amount, having been created to make a special payment, and (3) the bank is liable to pay the check on demand only as long as the drawer has a sufficient deposit to his credit to cover the

amount of the check. The last reason is the most important. Brown is willing to accept Smith's check because he knows Smith and believes him to have sufficient funds on deposit to cover the check. Williams, who knows Brown but not Smith, would accept Brown's check, but would hesitate to take that of Smith, even though it were endorsed by Brown. Further, Smith's check will probably not be for the right amount, and it is just as easy and much more satisfactory all around for Brown to deposit Smith's check, get the amount of it credited to his account, and then draw a new check of his own to pay Williams.

Compare this process with payment by means of bank notes. The bank note evidences a liability of the bank to pay lawful money on demand. If Smith pays Brown with bank notes, the liability of the bank is transferred from the former to the latter. Brown uses the same notes to pay Williams and the liability of the bank is again transferred. The nature of the transaction would not have been essentially different if Brown had taken the notes received from Smith to the bank, had them cancelled, and had obtained new notes representing the same liability with which to pay Williams. Yet this latter procedure is precisely what happens in the case of most payments by check. A new paper evidence of the same liability is used for the second payment.

We have dwelt on this at the risk of considerable repetition because of the necessity of a clear understanding of just why checks are to be considered in a similar light to bank notes. Both act primarily in the capacity of media of exchange, and both fulfill the function satisfactorily, which definitely places them both in the category of money in accordance with our definition.

The relation of the check currency to the value of money.—The similarity between a check and a bank note currency having been demonstrated, it follows that their effects on the value of standard money are similar in nature. The wide

use of checks as money permits an economy per unit of money in the need for the standard and the extent of this economy depends upon the proportion of reserves which is maintained against deposits. Because of the fact that the check currency is expanded through the lending operations of the banks, as in the case of elastic bank note issues, the effect of an increase in quantity tends to be counterbalanced in part by an increase in goods if the banks follow a sound lending policy, and a decrease in productive activity is normally followed by a repayment of loans and some decrease in the quantity of the check currency outstanding. On the other hand, the use of such currency to purchase investments or the loan of it to carry goods over considerable periods will have the result of increasing the quantity of money in the hands of the public without any rapid increase, if any at all, in the supply of goods, and prices will thus tend to rise more rapidly than would have been the case if short time loans only, for the production and marketing of goods, had been made.

It is not necessary to repeat what has been said previously concerning the possible results of absolute changes in the demand for money. The facts there given apply equally well to all kinds of money, whether credit or full-bodied. The demand for money is exerted quite without reference to the kind of money, provided only that it is generally acceptable, and acceptable it must be in order to be devoted to use as money at all. The check currency then, as well as other forms of credit money, affects the value of the standard through increasing the quantity of money, either causing that value to decrease, or preventing it from increasing, depending upon the variations in the effective demand for money. We have seen that, in general, it is the proportion of reserves kept behind credit money that determines, or, better, limits the possible increase in the quantity of the latter. It therefore seems pertinent to examine in more

detail than we have yet done the forces which have been active in the determination of the size of the reserves which are ordinarily kept against the various types of credit money. The following chapter will accordingly be devoted to a discussion of reserves against credit money, and to a summary of the conclusions to be drawn from the treatment of the value of money in this and the immediately preceding chapters.

QUESTIONS FOR STUDY

1. "Quite apart from the issuance of bank credit money, a highly organized banking system exerts an important influence upon the value of money." Explain and defend.
2. If the quantity of money is increased by the expansion of a properly elastic bank note issue, what is likely to be the effect on the price level? Why?
3. Distinguish carefully between the effect on prices of an increase in bank note issues and a similar increase in government credit money.
4. Under what conditions will the effect of bank note issues on prices be least? Greatest?
5. What does your answer to question 4 show as regards the type of business which commercial banks should engage in if a stable price level is to be maintained?
6. What, if any, is the relation between bank note issues and absolute changes in the value of money?
7. How are inelastic note issues to be compared with (a) elastic note issues, and (b) issues of government credit money, as regards their effect on the value of money?
8. Is it legitimate to include bank notes under the head of money and, at the same time, to exclude the check currency?
9. Show the fundamental similarity between bank notes and the check currency.
10. Is there any important distinction between the relation of (a) elastic note issues, and (b) the check currency to changes in the value of money?

CHAPTER XIII

RESERVES AGAINST CREDIT MONEY

Reserves against government and central bank notes.—The size of the reserves which are kept against government credit money is determined by the government itself and this determination is based, usually, upon no fixed rules or principles. At one time a government may maintain reserves equal to nearly 100 per cent of its paper or other credit money, while at another it may cease to maintain any reserves and go on an irredeemable paper basis. The size of the reserves maintained, and hence the strength of the government's demand for the standard of value, varies, therefore, with the whims of the legislature and the attitude of the government toward the desirability of maintaining the convertibility of its credit money into gold, or specie.

By way of generalization, it may be stated that *as long as governments do see fit to maintain the redeemability of their credit moneys in gold, the size of the reserves which are kept for this purpose tend to be relatively large.* In the case of the majority of foreign countries, the governments do not issue paper money directly, but instead confer that power upon the central bank of the country and then regulate the activities of the central bank in this respect. In the United States, the government keeps outstanding a relatively small issue of its own notes and a limited amount of silver dollars and silver certificates, but these are together but a small portion of the total of government money (which consists

mainly of gold coin or gold certificates) and are therefore not very important. Against United States notes a reserve of slightly over 43 per cent ($150,000,000) in gold is maintained, while no specific reserve is kept against the silver dollars which are not directly redeemable in gold. With the passage of the Federal Reserve Act in 1913, the United States approached the practice of European countries by establishing a central banking system with important note issue powers, and Federal reserve notes have since come to assume the place of foremost importance among our domestic issues of paper hand-to-hand money. It therefore seems reasonable not to try to draw any distinction at this point between government paper money and the note issues of central banks for purposes of discussing reserve requirements, and the generalization that reserves behind government credit money tend to be fairly large holds also for central bank note issues.

Central bank reserve requirements.—As examples of the reserve requirements of some of the more important central banks, the following extracts from the *Federal Reserve Bulletin*[1] may be cited:

England.—Reserve of 100 per cent required against Bank of England notes (except for the authorized fiduciary issue, £19,750,000). It must consist of *gold* to the extent of at least 80 per cent. (Ever since 1853 it has been the practice of the bank to include no silver in its reported reserve.) There is no specified reserve requirement against currency notes.[2]

France.—The law does not impose specified reserve requirements on the Bank of France. It does, however, impose a maximum limit on note issue: since December 4, 1925, this limit has been 58,500,000,000 francs.[3]

[1] June, 1927, pp. 394–395.

[2] Currency notes were obligations of the English government—not of the Bank of England, but were supposed to be redeemable in gold at the Bank. They were a product of the Great War. See *European Currency and Finance*, Vol. I, p. 276. Under the British Currency and Bank Notes Act, which became law on July 2, 1928, the currency notes have been transferred to the Bank of England and the fiduciary issue has been increased to £260,000,000. For discussion and text of the act, see the *Federal Reserve Bulletin*, August 1928, pp. 564–569.

[3] On June 25, 1928, the franc was stabilized on a gold basis. The

Germany.—Reserve of 40 per cent required against notes in circulation. Not less than three-quarters of this reserve must be in *gold*—gold in possession of any office of the bank or deposited with foreign banks of issue in such manner as to be at the free disposal of the bank; the remainder may be in foreign exchange—bank notes, bills of exchange having not more than 14 days to run, checks and other claims (payable on demand in foreign currency) against banks of known solvency in foreign financial centers.

Japan.—Reserve of 100 per cent required against notes (except for the authorized fiduciary issue, 120,000,000 yen). Not less than 75 per cent of the required reserve must consist of *gold;* the balance may be in silver.

Belgium.—Reserve of 40 per cent required against all liabilities payable on demand, including both notes in circulation and demand deposits. Three-quarters of this reserve must be in *gold;* the balance may be in foreign exchange convertible into gold.

Norway.—A *gold* reserve of 100 per cent is required against notes in circulation (except for the authorized fiduciary issue, 250,000,000 kroner).

Sweden.—Reserve of 50 per cent required against notes (except for the authorized fiduciary issue, 125,000,000 kroner). The entire 50 per cent must consist of gold, which must belong to the Riksbank and be located in Sweden.

In the United States, a reserve of 40 per cent in gold must be maintained against all Federal reserve notes in circulation.

A glance at the foregoing requirements indicates that the minimum reserves which must be kept against central bank note issues, with the exception of France, range from 30 per cent in actual gold, in the case of both Germany and Belgium, to nearly 100 per cent in England and Norway. The Bank of France is subject to no legal reserve requirements, it is true, but the determination of the size of the reserve to be kept against note issues is left to the discrimination of the authorities in charge of the bank. The Bank of France has not redeemed its notes in gold (or silver) since 1914, but before that time the reserve maintained was

law, as it now stands, does not specify a maximum limit on note issues, but requires a minimum gold reserve of 35 per cent against notes and demand deposits. See the *Monthly Review* of the Federal Reserve Bank of New York, July 1, 1928, pp. 51–52.

large. From 1873 to 1914, it averaged over 65 per cent of both its note and deposit liabilities.[4] Thus the Bank of France, like the central banks with legal reserve requirements, normally keeps a high proportion of reserves when specie payments are maintained.

Reason for large size of central bank note reserves.—It may be thought that these reserves are higher than necessary to maintain the convertibility of the bank notes into gold. The notes of such banks are usually made legal tender and are accepted within the country of their issuance quite as readily as full-bodied coin, and perhaps a trifle more readily, since they are apt to be more convenient. If nothing but the domestic circulation had to be considered, it would be true that the large reserves maintained against these central bank note issues were greater than necessary. If there were no question of foreign monetary relations, the only demands for gold would ordinarily be for use in the arts, and reserves of the size noted would far more than meet the demands for industrial uses. But gold is needed for international payments as well to a certain extent. There is a possibility of a greater economy in gold reserves than now exists, a subject which will receive attention later, but, even so, the possible need for gold for purposes of foreign shipment increases the need for sizeable reserves behind central bank note issues.

In addition to the need for gold to meet demands for foreign shipment and for use in the arts, a certain amount must be kept in order to maintain confidence in the ability and willingness of the central bank to pay its notes on demand in gold. Contingencies may arise which, if not met, will destroy the confidence of the people in the bank's ability to make gold payments, whereupon many unnecessary demands for the conversion of notes into gold will materialize.

[4] See Wright, *Readings in Money, Credit and Banking Principles*, pp. 694–695.

It will not do for the reserve to be so small that an exceptional demand for gold, if met, will reduce it to zero. Another demand for gold might arise before the reserve could be built up again, and if this is not met, the bank's notes will depreciate in value as compared with gold.

It may appear to be an illogical and unreasonable attitude on the part of the people that they should be perfectly content to accept notes instead of gold as long as the gold reserve is ample, but that their desire for gold should increase as soon as the prospects of being able to obtain it become in any way uncertain. In reality, however, this attitude is entirely justified, especially as regards government credit money. Individuals, consciously or unconsciously, realize the propensity of governments, and some banks, to issue unduly large quantities of paper money when they are not tied down to something substantial and tangible such as the necessity of keeping their notes convertible. Gold is valued by all; paper money which is not convertible into gold (or, in some cases, silver) is not. It is therefore perfectly natural that misgivings as to their ability to obtain gold should cause people to want it, while the surety of being able to get it results in a decrease in the intensity of this desire. In fact, the only way in which a government, operating through a central bank, can hope to stay on the gold standard, is to require the latter to keep fairly large quantities of gold behind paper issues of the sort described—gold which, to all appearances, is lying idle and useless in the vaults of the bank, but which is nevertheless necessary for accomplishing the purpose in view.[5] Another reason why such notes should be backed by considerable quantities of gold will appear as we proceed to a discussion of the reserves held by individual banks against their demand deposits.[6]

[5] A number of central bank reserve requirements are less severe today than formerly. It seems likely that a still greater economy in reserves will be forthcoming in the future.

[6] Discussion of reserves behind note issues of other than central

Factors determining the size of reserves against deposits.—The determination of the size and composition of reserves against deposits is of particular importance in the United States, England, and Canada, the largest and most important of the check-using countries. Some checking accounts are maintained in other countries, but no wide use of a check currency has developed. The remainder of this discussion, therefore, will find its chief application in the case of the countries mentioned.

When any large proportion of total payments is made by check, banks will find the demand for hand-to-hand money limited chiefly to the demands of storekeepers and retail merchants generally for *till money* for the purpose of making change, the demands of individuals for *pocket money,* and the demands of employers for hand-to-hand money for *pay-rolls.* There is a more or less continual flow of such hand-to-hand money into and out of the banks. Each day certain individuals are drawing down their deposits in exchange for hand-to-hand money while others will be taking such money to the banks and depositing it to their credit. These deposits and withdrawals tend to cancel, but will probably not cancel exactly on any given day. Furthermore, it would be undesirable and inconvenient for banks to try to pay out the same money which was deposited—on any given day—even if withdrawals and deposits did balance exactly. It would not only confuse the accounts of the tellers, but, should the bulk of the withdrawals come in the morning and the deposits in the afternoon, difficulty would be experienced unless the bank had some money on hand in the morning to meet the withdrawals. It is therefore necessary for banks to keep on hand a small reserve of "till money," as it may be termed, to meet these regularly recurring daily demands.

banks is omitted because, in most countries, such note issues are comparatively unimportant. Canada, which has no central bank, is an important exception. For a brief discussion of Canadian bank note reserve requirements, see below, p. 249.

When checks are used for 85 per cent, say, of all payments, it is clear that the size of the till money reserve may safely be much smaller than where no wide resort to check payments exists. It is true that checks drawn for making payments and deposited in other banks by the recipients will come back for payment through the clearing house in a short time, but such claims are largely offset by others which the payor bank has against other banks in the community. In so far as these conflicting claims cancel, there will be no actual need of reserve for purposes of paying claims held by other banks. But the fact that claims at the clearing house seldom cancel entirely is a reason for the maintenance of an additional reserve by the individual bank against the possibility of an unfavorable clearing balance.

Besides the reserve necessary for till money purposes and to meet adverse clearing balances, the individual bank will usually want to carry some amount in excess of what would normally be needed for these purposes in order to meet possible contingencies—unexpected and unpredictable demands for cash. Even so, the amounts which the commercial banks keep on hand as reserves are surprisingly small, usually averaging from ten to fifteen per cent of their demand deposits. In the United States, the minimum reserve which must be kept is fixed by law, but in England, where the joint stock banks are allowed to determine their own reserves—as also in Canada—the proportion kept is about the same. It would appear, then, that a considerably greater economy in the use of gold is effected through the use of deposit currency than through the issuance of central bank notes. But the real economy may be considerably greater than is indicated by the proportion of reserve to deposits which the individual banks maintain. This is true because the reserves of individual banks are not usually composed entirely of gold. The till money reserves are likely to consist largely of notes of the central bank, while the remainder of the reserves held

are frequently partly in the form of deposit credits with the central institution, or deposits with other banks in the system.

Possible economy through redeposited reserves.—The possible economy in gold as a result of the conditions depicted has already been described in the case of the United States at an earlier point (pp. 163–166), but will be repeated here in part for the sake of illustration. The average required reserve of the member banks of the Federal reserve system amounts to approximately 10 per cent, as was noted earlier, and all such reserves must be kept in the form of deposit accounts with the Federal reserve banks. Actually, of course, the member banks must keep some reserve in their own vaults, in excess of that required by law, to take care of till money needs. This may consist of Federal reserve notes, standard money, or any other form of acceptable hand-to-hand money. For purposes of showing the *possible* economy in the use of gold, we shall assume that Federal reserve notes are used entirely as till money, although this reserve may actually consist of gold or silver coin and certificates, United States notes, national bank notes, and subsidiary money in addition to Federal reserve notes.

Behind their deposits, which are the reserves of the member banks for the most part, the Federal reserve banks are required to keep a minimum reserve of 35 per cent in gold or lawful money. The amount of lawful money so retained, aside from gold coin and certificates, is negligible and we may consider these reserves as gold reserves, which, in fact, they practically are. Against Federal reserve note issues the reserve banks must keep a reserve of 40 per cent in gold. Consequently, one dollar in gold in the vaults of the Federal reserve banks forms the basis for an expansion of either $2.85 (approximately) of reserve deposits or $2.50 of Federal reserve notes. But the deposits of the reserve banks constitute the whole of the legal reserves and the bulk of the real reserves of the member banks, so that $2.85 in reserve

deposits will support an expansion of individual demand deposits of $28.50. Federal reserve notes, on the other hand, are used for reserve purposes only to the extent necessary to meet till money requirements, which probably do not average more than two per cent of the member banks' demand deposits. For the most part they (Federal reserve notes) are paid out to customers dollar for dollar and so have no appreciable power to support a further expansion of bank credit in the form of demand deposits. It approximates the truth to say, then, that the total amount of credit money which one dollar in gold, used as reserve for Federal reserve notes, can support is merely the $2.50 in notes which can be issued against it.[7] Actually, the possible expansion of bank credit money, both notes and deposits, which can take place on the basis of a dollar in gold in the Federal reserve banks will vary between these two limits, depending upon the relative demand for deposit credit and hand-to-hand money, and will probably be nearer the upper limit than the lower one. At all events, the point to be made is clear. There is much greater economy in the need for gold than is at all apparent from the reserve ratios of the individual banks.

Deposit reserves in England and Canada.—The situation is somewhat similar in England. The joint stock banks are not subject to any legal reserve requirements, but in practice they keep their reserves partly in the form of deposits with the Bank of England and partly in cash in their own vaults. A considerable amount of the latter is likely to be in Bank of England notes. The joint stock banks, taken together, can expand their loans and deposits to several times the amount of their reserves. In so far as these reserves consist of Bank of England notes, no further economy in the use of gold is to be obtained, as these notes are practically gold

[7] It should be understood, of course, that these figures merely represent proportions. Federal reserve notes cannot be issued in $2.50 denominations, and no gold dollar pieces have been coined for years.

certificates. Deposits at the Bank of England, however, have less than 100 per cent reserve behind them. The bank is not required to keep any specific reserve by law, but at present maintains a reserve ratio of somewhere in the neighborhood of 35 per cent.[8] To the extent that the reserves of the joint stock banks consist of deposits with the Bank of England, there is a greater economy in gold than is apparent from their reserve ratios.

There is no central banking structure in Canada, so that the Canadian banks cannot keep their reserves in the form of deposits with the central bank. Even there, however, the reserves of any individual bank are not composed entirely of cash, balances in other banks being included as well under this head. Further, aside from a five per cent redemption or safety fund, no specific reserves are required against note issues. The Canadian banks do not need to keep as large a reserve in lawful money as would be necessary if this were not the case, for added demands for hand-to-hand money may be met by issuing notes, against which a reserve no larger than that behind deposits is maintained. In fact, the reserves of the Canadian banks are maintained against their demand liabilities as a whole—both notes and deposits—no distinction being drawn between the two items for reserve purposes. The issuance of notes under such circumstances ordinarily results merely in a decrease in one form of liability and an increase in another with no greater or less economy in the need for gold (or government money) in the one case than in the other. The ability to pay out bank notes to meet such demands for hand-to-hand money makes it possible to get along safely with a smaller gold reserve than would otherwise be necessary.[9]

The need for large central bank reserves.—It should now be plain why it is desirable for central banks to keep fairly

[8] *Federal Reserve Bulletin*, March, 1928, p. 197.

[9] For a more complete description of the English and Canadian requirements, see Wright, *op. cit.*, Chapters XVI–XVIII inclusive.

large reserves of gold behind both their note and deposit liabilities. These reserves normally comprise the ultimate gold reserve of the country upon which the entire credit structure rests. In the check-using countries which have central banks, a really tremendous amount of credit money depends for its acceptability and stability of value upon the gold reserves held by the central institutions. In the United States, for example, the total cash reserves of the Federal reserve banks at the close of the year 1927 amounted to some 2,893 millions of dollars and constituted nearly 70 per cent of the reserve banks' note and deposit liabilities,[10] so that the proportion of reserves held was relatively high at this time, yet the total of bank credit money (Federal reserve notes and member bank demand deposits) supported by these reserves amounted to over 24 billions of dollars.[11] Such central bank reserves may have to be used up, in part at least, in times of stress to maintain confidence in the soundness of the credit structure of the country, but normally they should be kept at a sizeable figure for the very purpose of meeting contingencies when they do arise and thus maintaining the necessary confidence in the banking system.

Bank Credit Money and the Value of the Standard—Conclusions

Economy in the use of gold.—We have seen that various countries, and especially those which have developed a highly efficient check system, have greatly economized on the need for gold per unit of money through the use of bank credit money. This has naturally resulted in an increase in the amount of money in those countries and a consequent tendency toward a decrease in the value of gold. In the preceding discussion we have implied that changes resulting

[10] *Federal Reserve Bulletin*, January, 1928, p. 93.

[11] *Federal Reserve Bulletin*, March, 1928, pp. 176 and 226. The figures in the text are estimates based upon data found on the pages noted.

from the use of bank credit money took place suddenly for the sake of making clear the exact nature of the chief forces that the use of such money exerts on the value of the standard. Actually, there has been a continued and much slower development of credit media of exchange than has been indicated. As industry and trade have developed, a larger amount of money has been needed to carry on the increased business efficiently, and various economies in the use of gold have been evolved as a result of this added need for money. The increased need for money might conceivably have been met by an increase in the amount of gold coin used. This would have been expensive, however, and not nearly so convenient as the present credit media of exchange. In fact, it is impossible to believe that the present-day state of development in industry could have been attained in a country like the United States had it not been for the development and perfection of the check system—the most efficient, most convenient, and cheapest system of money payments which can easily be imagined. By the development of such a system, the United States has found it possible to devote its wealth and income to the production and consumption of goods and services to a greater extent than would have been possible had it been necessary to expend a part of them in acquiring larger amounts of gold for monetary purposes.

The fact that the use of credit moneys, especially the check currency, developed in response to industrial needs means that the actual effect of the increased quantity of money has not been so much to raise prices as to keep them from falling. Prior to the war period, the general level of prices in the United States (as shown by Snyder's comprehensive index) remained fairly constant over a relatively long period. That this is true in spite of increased efficiency in the use of credit money indicates that a fall in prices might have been expected had not resort to these forms of payment taken place.

Economies in gold follow business needs.—In general, it may be stated that increased economies in the use of gold normally follow rather than precede the needs of business. Banks cannot force loans upon their customers. Over a long period an increased use of efficient credit media of exchange will result only because the increase in the volume of trade makes business men come to the banks for additional loans. Practically, therefore, the resort to credit money will not be likely to result in any pronounced rise in the trend of general prices. This is true even when some epoch-making change occurs in the organization of the banking system of the country. The establishment of the Federal reserve system in the United States under the Federal Reserve Act of 1913 so mobilized and concentrated the gold reserves of the banking system as to make possible a very pronounced expansion in the amount of credit money. Such an expansion did occur during the war period, but for other than commercial reasons. Since the close of the post-war depression period in 1921–1922, expansion such as is compatible with the gold holdings of the Federal reserve banks has not occurred in spite of a leaning on the part of the Federal Reserve Board toward a policy of easy money. If the reserve banks continue to retain their present large gold holdings, we may expect a gradual utilization of the present surplus reserves as a basis for the additional deposits which may be expected to accompany the growth and development of industry.

The demand for the standard decreased.—In conclusion, attention should be called to the fact that, from the point of view of the nation as a whole, an increase in the use of credit money affects the value of standard money by decreasing the demand for the latter, or, at least, by preventing the demand for it from increasing as rapidly as it otherwise would. Since the value of money can be measured only in terms of the general price level, it is clear that it is the demand for money of all kinds in relation to the supply

of money of all kinds that determines this value. We have therefore proceeded upon the basis that the use of credit money tends to decrease the value of money by increasing its quantity. This is perfectly reasonable, but, in so far as the increase in the quantity of money results from an increased use of credit money, the demand for standard money, or better, for the standard of value, decreases relatively to the total demand for money. There is, consequently, no contradiction involved in stating that the use of credit money both increases the supply of money and reduces the demand for the standard of value.

QUESTIONS FOR STUDY

1. What determines the size of the reserves which governments maintain against issues of credit money?
2. Why is it unnecessary to draw a distinction between government notes and the note issues of central banks in a study of reserve requirements?
3. Show by illustration from the reserve requirements of a number of important central banks that the reserve required against the note issues of these institutions is usually large.
4. Does the variation in the reserve requirements which are lished on pp. 241–242 suggest anything with regard to future possibilities of economizing in the use of gold? If so, what?
5. What is the reason for large central bank reserves?
6. What three groups of factors, apart from legal requirements, determine the size of the reserves which individual banks find it desirable to maintain against their demand deposits?
7. How does the process of redepositing reserves make possible an increased economy in the use of gold?
8. Illustrate the possible economy of gold through the redepositing of reserves in the United States at the present time.
9. What is the situation in this respect in England? Canada?
10. Show why large central bank reserves are really necessary, especially in the check-using countries.
11. Summarize the conclusions of the text on the relation of bank credit money to the value of the standard.

BIBLIOGRAPHICAL NOTE

In connection with the present chapter, a few references in addition to those given at the end of Chapter IX may be cited. The

monthly issues of the *Federal Reserve Bulletin* contain statements of condition of all the more important foreign central banks. The same publication also presents the annual reports of various central banks from time to time, and these reports contain much that is of current interest relative to central bank operation in different foreign countries. For those wishing to obtain more detailed information concerning the English and Canadian systems than is given in this chapter, I. Wright, *Readings in Money, Credit and Banking Principles,* Part V, is recommended. The same volume, Chapter IV, deals with bank reserves in some detail.

C. H. Kisch and W. A. Elkin, *Central Banks* (London, 1928), and H. P. Willis and B. H. Beckhart, *Foreign Banking Systems* (New York, 1929), will also be found to furnish much valuable material in this connection.

CHAPTER XIV

THE BUSINESS CYCLE AND THE VALUE OF MONEY

Introduction.—In the preceding chapters on the value of money attention has been directed chiefly to the forces which determine that value. The implication of those chapters has been that rapid changes in the value of money are undesirable, and it may now be asked why this should be the case. The answer is that changes in the value of money result, not in equal changes in all prices, but in a maladjustment of economic relationships within the price system which it is desirable to avoid in so far as it is possible to do so. The internal changes in the system of prices which are presumably effected by changes in the price level destroy the equilibrium of the price system and prevent it, supposedly at least, from properly regulating the consumption and production of goods.

It is the purpose of the present chapter to examine at some length these internal changes in the price system and to try to ascertain, as a result of this examination, the real relationship which exists between such changes and alterations in the general level of prices. Since internal instability of prices of the sort mentioned is closely bound up with that changing round of business activity known as the business cycle, we shall best approach our problem by first describing the outstanding characteristics of the business cycle. Having done this, we shall be in a position to attack the problem of the relationship of the business cycle to the value of money.

The Typical Pre-War Business Cycle

A definition of the business cycle.—*The business cycle is the general designation given to the round of business activity which traverses a series of recurring phases, usually in the same order, but of irregular duration.* Each of these phases of business activity blends into the succeeding one, but each has a sufficient number of distinct characteristics to permit its designation as a separate aspect of the complete phenomenon. It seems possible to distinguish four such phases as follows: *depression, revival, prosperity,* and *recession.*

Depression.—Since the four phases of the cycle follow each other in order repeatedly, it is impossible to point to any phase as constituting the beginning or the end of the cycle. In describing the cycle, however, it is necessary to break into the circle somewhere, and we shall begin the description with the period of depression. The depression phase of the cycle is characterized by a low level of prices in both the commodity and security markets, large bank reserves with attendant easy money conditions, considerable unemployment, and a relatively low degree of productive activity.

Revival.—After a longer or shorter period of time, productive activity will begin to increase and business will then have entered the stage of revival. The recovery from depression is usually the result of a number of factors. The large bank reserves of the depression phase cause the banks to lower their discount rates in an attempt to increase the amount of their business. The resulting easy money conditions make speculation in the security markets profitable and the prices of stocks, particularly common stocks, begin to rise. This rise in stock prices of itself tends to make business men more optimistic with regard to the future, and the fact that they can obtain loans from the banks at easy rates adds to their desire to expand their productive activity. Another factor of importance is the stability of prices. As long

as any great number of business houses have surplus stocks of goods on hand which are being carried over from the preceding period of recession, an increase in buying activity on the part of the community generally will lead to a dumping on the market of these carried over goods and a possible further decrease in the prices of such goods. Those producers and dealers who have liquidated their stocks of goods will hesitate to resume normal productive activity until they are sure that others are practically rid of their stocks, and that prices have reached a state of equilibrium at the new low level.

Eventually consumers' demand is bound to increase. In a period of depression and unemployment people tend to buy as little as possible, partly in the hope that prices will fall still further, and partly because the unemployed must economize. In the course of time, however, clothes will wear out and other articles which have been made to last as long as possible will have to be replaced. People will also become convinced that prices of goods have reached rock bottom and that no better bargains are to be hoped for. These circumstances lead to a renewal of the demand for goods on the part of consumers, followed by a revival in industrial and commercial activity. For a brief time after activity is resumed no increase in prices may take place. The putting into use of hitherto idle plant and equipment means a reduction in the costs of manufacture and the ability to sell at a profit at the prevailing low level of commodity prices. But the revival of consumers' demand has a cumulative effect which does not long permit this condition to prevail. Increased productive activity means increased employment and a further increase in the consumers' demand for goods on the part of the re-employed. As soon as the demand for goods has become great enough to bring into use all the previously idle plant and equipment, prices will begin to rise. Producers raise prices first, even in competitive lines, because

they find that they cannot increase their production further without adding to their plants, hiring new hands, etc. Wholesalers and jobbers, finding that the prices of goods that they handle have been raised, immediately raise their prices to retailers and also put in large new orders to the manufacturers, in order to lay in as great a stock of goods as possible before prices rise still more.[1] Retailers act in similar fashion, and the large mass of forward orders convinces producers of the necessity of increasing their outputs still further, at higher costs, and at consequently higher prices. Revival has merged into industrial or business prosperity.

Prosperity.—The stage of prosperity is simply a continuation of the revival phase of the cycle. As business activity increases, the demands of business men for loans also enlarge. In order to meet the demands of their regular customers, the banks withdraw funds from the security markets where they have been on loan to speculators, and also raise their discount rates in order to protect their reserve position by preventing too rapid an expansion of loans. This shifting of funds from the security to the commercial and industrial loan markets results in a sharp rise in the rates for money in the former market with a resultant curtailment of speculative activity. The increased industrial activity with its accompanying rise in the prices of commodities will result in demands on the part of labor for higher wages. When labor is fully employed and in active demand, employers are loath to have production interrupted by strikes, and such wage demands are usually granted, at least in part. Wages do not, however, tend to rise in the same degree as commodity prices nor do they often rise as rapidly as does the level of prices of commodities. Interest rates also rise, both in the investment and commercial loan markets, but often

[1] It must be remembered that this is a description of the pre-war cycle. Business practice has been somewhat different in this respect since 1922.

the rise is not so rapid—during the stages of late revival and prosperity—as the rise in the prices of finished products. Many producers, also, have long term leases or contracts the rental or payment on which does not rise at all. Consequently, *although costs do rise, the increase is not in proportion to the rise in the prices of products.* This explains the stimulation offered to business men by a rising commodity price level, and their desire to stock up heavily with goods before commodity prices rise to still greater heights.

With the initial rise in prices in the latter part of the period of revival comes a demand for additional plant and equipment and a period of great prosperity for the building trades. Funds for new building are obtained largely from the investment market and, with a copious supply of investment funds available, the cost of obtaining new plant and equipment is low. As the demand for capital increases during the period of prosperity, the rates in the investment market for loans also increase. There is also another reason for the higher rates on investment loans. A vast mass of securities, representing investment funds, is continually being carried by speculators on the stock market on funds borrowed from the commercial banks. As business men increase their demands for commercial and industrial loans, some of these funds are withdrawn, which aids the tendency toward increased tightness in the investment market. In spite of this, there is a strong demand for equipment which continues throughout the period of business prosperity.

Higher costs of doing business.—As the cycle progresses, prosperity develops certain stresses in the economic structure which should serve as a warning that the end of the period is in sight. One of these is the higher cost of doing business. After existing plant and equipment are fully used, increased production can take place only at increased costs per unit produced. Old leases and contracts, made under favorable circumstances, expire and have to be renewed at

higher prices. Actual operating costs also increase rather rapidly. Among the most important of these, in many lines, is the cost of labor. Labor costs are greater because of higher money wages (with extra pay for overtime work), and, especially important, because of decreasing labor efficiency. Overtime work, under the best of circumstances, is less efficient than regular time work because the laborer is more or less exhausted after his regular day's work. But the inefficiency is not confined to overtime work. In periods of full employment, with business men eagerly competing for the existing supply of labor, all laborers tend to become less efficient and to "do as they please" because of the numerous opportunities for employment elsewhere if their present employers are not satisfied with the way they do things. This attitude on the part of laborers of course results in higher real costs for the labor factor in production. Besides the problem of labor costs, increased operating expenses confront the business man from the capital side. Old and normally obsolete machinery is brought into use in order to meet the ever-increasing demands for goods, and this can only mean higher costs for the goods produced with the aid of such antiquated machinery.

Stringency in the loan markets.—Growing stringency in the investment market and in the market for short time loans forms a second strain. Projected investments in plant may have to be abandoned because of high rates and a scarcity of available funds in the market for investment loans. This results in a partial falling off in employment in the building trades even at a time when the business world in general may appear to be highly prosperous. This beginning of unemployment, though slight, does result in some decrease in the consumers' demand for goods, and makes further increases in the prices of consumers' goods more difficult. In the commercial loan market, those on the supply side—the banks—become somewhat uneasy about their diminishing re-

serve ratios, and raise rates sharply to prevent the further expansion of loans. They may even demand payment of certain loans when they fall due, and confine their extensions of credit to their own regular customers. Bank rates, then, tend to rise more sharply than the prices of finished goods when this stage of the cycle has been reached and this helps to cut down the diminishing margins of profit between cost and selling price. The intense demands of business for added loans tend toward the withdrawal of increasing amounts of funds from the security markets, with a resultant further curbing of speculative activity on those markets and a downward turn in stock prices. The withdrawal of funds from the speculative markets, as noted, helps to intensify the already existing stringency in the investment market and aids in the curtailment of new construction projects.

Fictitious demand for goods.—Still another set of circumstances may develop to add to the growing maladjustment of the parts within the business structure. Many manufacturers, in a period of boom production, are unable to fill at once all the orders for goods which they have received and so resort to an allocation of their output among their various customers. Retailers and wholesalers, upon finding that their orders can be filled only in part by one manufacturer, may resort to a duplication of orders by placing the full order with more than one manufacturer in the hope that the amounts allotted to them on the different orders will be sufficient, all told, to satisfy their original demands. The manufacturers naturally receive an entirely exaggerated and fictitious notion of the real demand for their products and proceed to make plans for the filling of these large forward orders, many of which do not represent any real demand on the part of consumers. Besides this fictitious demand, more difficulties may devolve upon the manufacturers *if the transportation system of the country is unable to handle the actual shipments of goods in a rapid and efficient manner.* Failure

to make prompt deliveries results in inability to continue collections at the proper rate and makes necessary certain added demands for credit to carry the goods in process of shipment, and at a time when the banking system is likely to be strained to the utmost.

Inability to raise prices.—Added to all these unfavorable factors is the inability of business men to raise the prices of consumers' goods by the amount necessary to maintain the earlier margins of profit. The reasons for this are several. The partial decrease in consumers' demand because of unemployment in the building and equipment industries has already been mentioned. In addition, certain prices are more or less rigidly fixed by law or custom. Doctors and lawyers have set fees for their services which are difficult to change with any degree of rapidity. Teachers are kept on a given salary scale for years regardless of the short time fluctuations in commodity prices. The salaries of clerks and executives, while they may increase, do not rise to anything like the extent of the increase in the prices of goods. Wages, as has been noted, do not rise with a degree of rapidity comparable with that of the commodity price level. The individuals in question, therefore, are not able to demand as many goods as formerly. In the public utility industries, at times, the prices which may be charged are rigidly set by law, while the costs of labor and capital are no less for these concerns than for non-regulated industries. Even when public utility commissions are given the power to adjust rates from time to time, they are invariably slow in making adjustments, which works to the detriment of the utility in times of rising costs. While such industries must continue to operate and pay the necessary costs as a matter of public convenience, their owners are suffering from diminished incomes on their investment, which cuts their purchasing power over other goods.

It may be objected to all this that the fortunate business

men who have succeeded in raising their prices are receiving large profits which should enable them to exert a demand for goods sufficiently large to offset the decrease in demand on the part of the other less fortunate members of the community. The only difficulty here is that the former group have a large surplus after satisfying their major wants. Finding high rates in the investment market, and confronted by the exaggerated demand for goods which has already been mentioned, they are likely to invest this surplus income in their own plants in order to fill orders for goods, a demand for which does not really exist. In other words, production is misdirected to the extent that goods are being produced at high costs in larger quantities than can be absorbed at prices high enough to cover these costs and leave a satisfactory margin of profit.

Recession.—As consumers' demand falls off, or at least fails to keep pace with the increase in costs, merchants find it increasingly difficult to turn over their inventories rapidly and are therefore unable to make prompt payment to their creditors. Their own collections have probably slowed down and they begin to worry about their financial position and their debts at the bank and to other business men. It is at such times that business men begin to desire money, as such, more than additional goods. The least shock to the unstable business structure is sufficient to make the demand for money effective and bring about a large scale liquidation of goods with attendant falling prices. The failure of some prominent bank or business house at such a time is usually sufficient to cause the collapse. If no such event takes place, the downturn in prices may come on in quiet and orderly fashion. Some keen merchant, perhaps, realizing the nature of the situation, may begin to exert an increased demand for money by offering a portion of his goods for sale at reduced prices. This attitude will spread quickly and a general liquidation of goods will occur. This is the stage of recession.

If the banks are still able to extend added loans, though at high rates, the recession may be weathered without a severe shock. The high rates cull out the speculators and unsound business houses, while those firms which are fundamentally sound are willing to pay the high rates in order to liquidate their goods gradually with as little loss as possible. If the banks cannot extend further credit to customers at a time of recession, but insist on an immediate repayment of loans as they fall due, the liquidation will be much more abrupt and many basically sound business houses will fail, along with the unsound ones, for want of the proper financial assistance for a short period of time.

The liquidation which accompanies the recession is likely to be aggravated by the cancellation of orders on the part of all groups of merchants and dealers. The retailer, pressed for the payment of his debts, and unable to sell his goods in sufficient quantities—at profitable prices—to meet the demands of his creditors, cancels the orders for goods which he has not yet received from the wholesaler and jobber. The stocks of goods which he has on hand are already large, he is confronted with the necessity of selling them at unprofitable prices, and he has no idea of loading up with a lot of additional goods, previously ordered at the old high level of prices. The wholesaler, in turn, cancels his unfilled orders with the manufacturers for the same reasons. This leaves the latter with large stocks of finished goods and goods in process which must either be carried or disposed of at sacrifice prices. After the initial fall of prices, some uncancelled orders may remain to be filled, although probably not many. These will be taken care of, and then production will be curtailed, men discharged, and, finally, debts paid. Many business houses are likely to fail in the course of the liquidation, but, with the proper sort of banking system, the sound ones will be carried over and will eventually pay their debts in full. With the repayment of loans, bank re-

serves increase, and the banks will again lower their discount rates in an attempt to increase their profits through expanding their business. Surplus funds will flow into the speculative markets and the rate on call loans will be low. Bond prices, of excellent issues, will be fairly high in view of the low money rates, and speculators in the stock market will be looking for some signs of revival in order to purchase stocks while prices are low and call money is cheap. This brings us back to the stage of depression with which we started.[2]

Post-war business conditions in the United States.—Such was the typical course of the pre-war business cycle in this country. All the cycles were not of the same length, and the duration of each stage in any given cycle was not necessarily the same proportion of the entire length of that cycle as in other cyclical movements; but, generally speaking, the four stages ranging from depression to recession or crisis[3] followed each other in the order described and exhibited in every case most, if not all, of the characteristics set forth.

During the Great War, the United States experienced a period of pronounced business prosperity with active production and a marked advance in the price level. Shortly after the signing of the armistice, the business of the country experienced a temporary recession with somewhat depressed business conditions following in the first part of 1919. This recession and depression resulted from the readjustment from a war to a peace basis. Numerous restrictions which had been in force during the War were removed, the production of war supplies gave way to peace-time production, and returning and discharged soldiers were anxious to

2 The foregoing description of the typical business cycle follows rather closely, in broad outlines, that contained in W. C. Mitchell's first book on *Business Cycles*. Other sources which have been drawn on somewhat, as well as the one just referred to, are cited in the bibliographical note at the end of the chapter.

3 The term crisis is used to designate recessions of great severity.

be reinstated in their old jobs or to find new ones. It was unavoidable that some readjustment should take place. But the period of depressed business did not last a great while. The population of the country, freed from the restrictions on their spending which the war conditions had imposed and possessed of large quantities of liberty bonds which could be readily turned into cash, set out upon an orgy of extravagant expenditure which revived business activity in rapid fashion and permitted the absorption of the great mass of returning soldiers into industry.

Reserve banks impotent to curb expansion.—From this point on, the course of the typical pre-war cycle was followed closely. Business prosperity entered a period of strain with its attendant stresses and maladjustments. In one sense, the situation was different from that prevailing in any of the pre-war cycle. The Federal reserve system had been established in 1914, and the control of credit was largely in the hands of the reserve banks and the Federal Reserve Board. In order to facilitate Treasury financing operations, the reserve banks had maintained artificially low discount rates throughout the entire war period, and it was not until late 1919 that they were released from the dominance of the Treasury policy. For a considerable portion of the post-war period of expansion, therefore, the discount rates of the Federal reserve banks were artificially held down. Thus one of the usual stresses—increased stringency in the money market—failed to develop as it would have done had not the reserve banks been subject to the financial policy of the government. This merely exaggerated the other maladjustments in the business structure, so that, when the reserve banks finally raised their discount rates in late 1919, and again in early 1920, the period or stage of crisis was brought rapidly to a head.

Events following 1920.—The crisis of 1920 was severe, but the presence of the reserve banks, ready to extend credit

to basically sound enterprises through the member banks, prevented a panic from developing and allowed an orderly liquidation and readjustment to take place. Then followed the usual period of depression which lasted into 1922. In that year, business again began to revive, and the level of commodity prices rose from 138 in January to 156 at the end of the year.[4] During the early months of 1923, business was further accelerated and some of the old-time optimism seemed to have returned. Vigorous warnings were issued by bankers and prominent business men against too rapid an expansion of credit and a recurrence of the conditions of 1920, and early in the year the Federal Reserve Bank of New York (and those of Boston and San Francisco) raised its discount rate. There followed a mild recession in business, with a fall of the wholesale price level from 159 to 151[5] and a subsequent lowering of discount rates by the reserve banks which had previously raised them. Business seemed to respond somewhat to the lower money rates, but was spotty and not overly active in 1924, although a rather sharp increase in activity occurred in the last quarter of that year which brought business activity up to a fairly high point in 1925. The year 1926, and the first third of 1927, showed substantial business prosperity, followed by a mild recession with some increase in unemployment during the latter part of 1927. Conditions in the first few months of 1928 were spotty with depressed conditions in some industries and a high degree of activity in a comparatively few others.

During the period from 1926 on, wholesale prices fell from 103.6, in January, 1926, to 93.7 in April and May, 1927, following which they rose to 97 in October, 1927, and have since (April, 1928) remained practically stable.[6] In the same period, discount rates at the reserve banks were

[4] Bureau of Labor Statistics wholesale price index; 1913 = 100.
[5] *Ibid.*
[6] Revised index, Bureau of Labor Statistics; 1926 = 100.

maintained at 4 per cent until the late summer of 1927, with the exception of a brief period (April 23 to August 13, 1926) when the rate at the Federal Reserve Bank of New York was lowered to 3½ per cent. After August 5, 1927, all the reserve banks again decreased their rates to 3½ per cent, and since January 25, 1928, rates have once more been raised at all the reserve banks to 4 per cent. There thus appears to be no close correspondence between discount rates at the reserve banks and the course of wholesale prices since the beginning of 1926, a fact which will receive some comment in a later connection.[7]

We have now described the typical pre-war business cycle and the course of business activity since the war. With this background, we may attempt to discover the nature of the real relationship between the round of business activity and the value of money.

The Relation of Changes in the Value of Money to the Business Cycle

Snyder's index and the wholesale commodity price level.—The preceding discussion has emphasized the fact that there is a good deal of instability within the entire system of prices which results from the changing course of business through the various phases of the business cycle. Different groups of prices, however, at times move in opposite directions during certain cyclical phases, or move in the same direction at varying rates. Consequently, in order to discover the degree of relationship which exists between the business cycle —with its diverse price movements—and the value of money, it is necessary to make use of some measure of changes in the general level of prices which will show the composite effect on the purchasing power of money of the simultaneous movements of the various important groups of prices. The

[7] See below, Chapter XVI, p. 316.

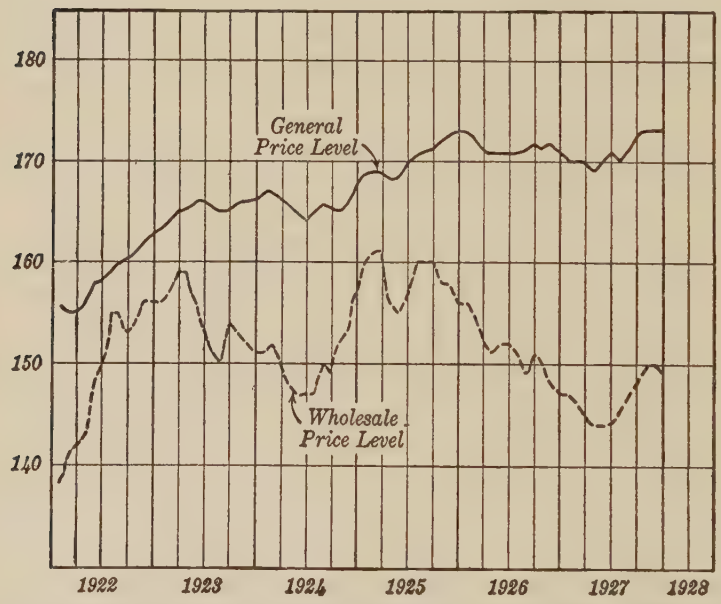
best measure of this sort which is now available appears to be Snyder's index of the general price level, the composition of which was explained at an earlier point (pp. 189–190). For years, writers on the subject of money have considered changes in the wholesale commodity price level as coincident with changes in the value of money; in fact, this attitude is the prevailing one even at present. A comparison of Snyder's index with the Bureau of Labor Statistics wholesale price index, however, shows that this is not the case. The group of wholesale commodity prices fluctuates through a wider amplitude than does the general price level and must be considered as but one element or factor in the entire price system. For this reason, we shall use Snyder's index of the general price level in comparing the course of the business cycle with changes in the value of money.

The general price level is normally comparatively stable.—An examination of the chart opposite page 190, which shows the annual changes in the general price level from 1887–1927 inclusive, indicates rather clearly the relative stability of the value of the dollar under ordinary conditions. Leaving the war years out of account as being decidedly abnormal, the chart covers two periods of normal or ordinary business conditions, one from 1887–1915, and the other from 1922–1927. In view of the fact that Snyder's index, as revised from 1913 to date, is more reliable for the latter of these two periods than for the former, we shall examine the relation between that index and the wholesale commodity price index of the Bureau of Labor Statistics for the six years ending December, 1927.

The chart on page 270 shows the fluctuations of these two indexes by months for the period in question. It is observable that the general price level has been subject to less marked fluctuations than has the level of wholesale commodity prices. Thus, in 1923, the wholesale price index fell steadily from 159 in March to 150 in August, while

Snyder's index stood at 165 in March and April, rose to 166 in May and June, and fell to 165 again in July and August. Again, wholesale prices fell from a high of 160 in Semptember, 1925, to a low point of 144 in May, 1927, a fall of 10 per cent. During the same period, the general

CHART VII. Snyder's Index of the General Price Level and the Wholesale Commodity Price Level (B. L. S.), 1922–1927.



Source of Data: General Price Level, *Review of Economic Statistics*, Feb., 1928, p. 49. *Wholesale Price Level*, B. of L. S. *Index. Federal Reserve Bulletins.*

price level fell from 172 to 170, a decrease of but 1.6 per cent. Other discrepancies between the direction and extent of change in the two indexes are also to be observed from the chart, but those mentioned are sufficient to show, (1) that the general price level and the wholesale commodity price level do not fluctuate together, and (2) that the general price level is decidedly the more stable of the two.

Internal price instability not closely related to changes in the general price level.—It may be inferred from the foregoing discussion that the instability which is to be found within the price system is not closely related to instability in the general level of prices. The author knows of no attempt to demonstrate this statistically, but Professor Mills, in a recent notable work,[8] has attempted to measure the relationship in question for wholesale prices only, and his conclusions are worthy of our attention.

> An attempt has been made to measure the relationship between instability of the price level and internal instability, the latter being measured by the indexes of dispersion and displacement, in combination. There has been found a tendency for the degree of internal disturbance to vary with changes in the price level, the internal disturbance being greater the greater the change in the price level. (It is the degree of change in the price level, not the direction of change, which appears to be related to internal disturbances.) If we assume that the causal relationship runs from changes in the price level to variations in the degree of internal disturbance, the evidence of the present study indicates that, during the years 1893–1926, approximately 40 per cent of the internal instability of wholesale prices could be attributed to fluctuations in the wholesale price level. The remaining 60 per cent may, on this evidence, be attributed to other causes which would, presumably, continue to operate if there were no changes in the level of prices.
>
> The proportion of internal instability attributable to changes in the level of wholesale prices was somewhat greater, as measured by monthly indexes, during the years 1920–1926. Again assuming a causal connection, there is evidence that during this period some 66 per cent of the internal disturbance of price relations was due to changes in the price level. There is a suggestion here that during a period of violent change in the price level there is a closer relation between external changes and internal disturbance than there is during more settled times.[9]

The work of Mills indicates, then, that under conditions which are not disturbed by violent and far-reaching price changes, such as those brought about by the Great War, less

[8] *The Behavior of Prices* (New York, 1927), especially Chapter III.
[9] *Ibid.*, p. 369.

than one-half of the internal disturbance in the system of wholesale prices results from changes in the wholesale price level. On the basis of this conclusion, it seems reasonable to believe that the effect of changes in the *general* price level on the internal instability of the whole price system would be much less marked than in the case of wholesale prices alone, in view of the relatively greater stability of the general level of prices.

Conclusion.—The conclusion from the evidence presented in the present chapter must be that there is a much less proximate relationship between the business cycle and changes in the value of money than has frequently been supposed. The price changes which accompany the business cycle are rather a result of maladjustments within the price system than of any far-reaching changes in the level of all prices.[10] They are a result of misjudgment of the demand for particular types of goods instead of being largely monetary phenomena. While the amount of money in use by business men varies from time to time through a rather wide amplitude, the banks transfer funds not wanted immediately by business men to other groups in the community who will use them for the purpose of buying security holdings, or for speculative buying of one sort and another, with a consequent increase in the prices of the things purchased which tends to offset the lower prices in the commodity field. Further, rents or wages may at times increase when the wholesale prices of commodities are on the decline. On the other hand, when the relative demand for money decreases for the country as a whole, because of decreases in the total volume of trade, the quantity of the check currency tends to contract correspondingly, so that the effect on the general price level is small.

It must not be thought, however, that the maladjustments which recur within the price system are of no interest to

[10] With the exception, of course, of periods of abnormal inflation such as accompanied and followed the period of the Great War.

the monetary theorist, for, since the banks are responsible for furnishing a good bit of the purchasing power of the country to business men by way of loans, it may be possible to devise ways and means for lessening the extent of maladjustments within the price system through the credit policies of the banks. The fact that business movements have been less violent generally since 1922 than they were in the typical pre-war cycle is considered by many, in fact, to be a direct result of credit control by the Federal reserve banks during the later period. Other students of the subject, on the other hand, are inclined to attribute the mildness of the business movements which have occurred since 1922 to a cautious attitude on the part of business men, an extremely efficient transportation system, and a consistent policy of hand-to-mouth buying on the part of large numbers of business concerns. A third group is willing to grant some significance to both of the preceding sets of conditions. In view of these conflicting opinions, it is desirable that we analyze with some care the processes of credit control in order to determine to what extent, if at all, it is possible to exert some influence on business conditions by means of systematic and organized control of bank credit. Accordingly, the next chapter will be devoted to a discussion of the technique of credit control as at present practiced by the Federal reserve banks and its probable effectiveness.

Note on Long-Run Changes in Money Value

Perhaps a word should be said concerning the effects of long-run changes in the general level of prices on the economic community. Such changes are indicated by the *trend* of the price level over a long period of time. For example, the trend of prices was downward in the United States from shortly after the Civil War until about 1896, which may be considered as an indication that the normal value of money was increasing during this period. This was beneficial to bondholders, long-term lessors, and the like, who received fixed amounts in dollars from their investments and found

these dollars capable of purchasing larger and larger amounts of goods and services as time went on. On the contrary, the corporations that issued the bonds, individual mortgagors, and lessees found the rise in money value disadvantageous since they were forced to pay the same number of dollars each year, although each dollar cost them an ever-increasing quantity of goods with the passage of time.

These statements, while generally true, require some qualification. During the fifteen-year period from 1880 to 1895, the general price level in the United States fell from 76 to 72 (or approximately 5¼ per cent) according to Snyder's index. Using this index as an approximation of the movement of the general level of prices, anyone who purchased bonds in, say, 1880 and held them continuously until 1895 would have found his real income increased by somewhere in the neighborhood of one-twentieth—a somewhat unsubstantial increase. On this side of the question it is to be remarked, also, that many of the individuals who purchased bonds in 1880 did not hold them throughout the entire period. The changing bond prices would thus insure a distribution of this gain among the various holders. On the other side of the question, it can by no means be assumed that the issuers of bonds suffered any great losses because of the increase in the value of money. While it is perfectly evident that those who had issued bonds continued to pay the same amounts in interest (providing they remained successful and solvent) in each year of the period, the era in question was one of increasing productivity, so that more was available with which such interest could be paid. As a matter of fact, what really happens in a period of falling prices when the decrease in the price level results from increasing economic productivity is that part of the increase in goods goes to the long-time creditors, so that they share with debtors and others in the increased economic product. In addition to this, many corporations were doubtless enabled to refund bond issues that came due at various dates throughout the period at terms more advantageous to themselves than those of the earlier issues. The same situation applied, in greater or less degree, to other payers and recipients of fixed incomes.

When the general level of prices is rising, the opposite situation occurs. Long-time debtors and payers of fixed charges tend to benefit at the expense of the creditors and other recipients of fixed incomes. Thus, in the United States, the general price level rose from 72, in 1895, to 96, in 1910, according to Snyder's figures. This was an increase of 1/3, so that the effects of the change were more pronounced than in the previous fifteen-year period in which the value of money was increasing. Nevertheless, the qualifications which applied to the effects of the decreasing price level in the

earlier period also apply (although in the opposite direction) to the effects of the rise in prices which occurred in the later years.

Although the direct effects of long-time changes in the value of money are apparently of little moment, their indirect effects on the business cycle itself are of more significance. Dr. Willard Thorp has shown, for example, that the average number of years of prosperity per year of depression in the United States varied from .8 and .9 in two periods of falling prices to 2.6, 2.9, and 3.1 in three periods of rising prices. It is true that wholesale commodity prices were used in these calculations, and not the general price level, but the inference is that changes in the general price level would be accompanied by similar results.[11] This inference seems justified in view of the fact that the general price level, as measured by Snyder's index, tends to move in the same direction as wholesale prices over long periods of time although through a less amplitude. It would seem, then, that we cannot ignore the long time movements of the level of prices, in spite of the fact that the direct effects of these movements are negligible.

QUESTIONS FOR STUDY

1. Define the business cycle.
2. What were the characteristics of the depression phase of the typical pre-war cycle in this country? Of the period of revival?
3. Describe the various stresses which may develop in the business structure toward the close of a period of pronounced expansion.
4. How may an absolute change in the demand for money on the part of business men and consumers bring on the recession phase of the cycle?
5. What is the proper action for the banks to take in a period of crisis or recession? Why?
6. How did the war and post-war cycles compare with the typical pre-war business cycle?
7. Describe briefly the course of business conditions since 1922, and point out some differences between it and the typical pre-war situation.
8. Were the short-run changes in the general price level (as shown by Snyder's index) very marked in the period before the establishment of the Federal reserve system? What does this suggest with regard to the relation between the business cycle and the value of money?
9. Is internal price stability closely related to changes in the general price level? Explain.

[11] See Mitchell, *Business Cycles* (New Edition), pp. 410–411, for a more extended discussion of this relationship.

10. How are changes in business to be explained, if not on the basis of changes in the value of money?

11. Do you consider the long-run changes in the value of money important as regards their direct effects on long-time debtors and creditors?

12. Show that long-run changes in the value of money may have important indirect effects on the depression phase of the business cycle. What are they?

BIBLIOGRAPHICAL NOTE

On business cycles, two works by Wesley C. Mitchell, *Business Cycles* (University of California Press, 1913), and *Business Cycles, The Problem and Its Setting* (New York, 1927), furnish an abundance of excellent material. The former has been followed closely in main outlines in discussing the course of the typical cycle in the present chapter. The latter, while not containing Mitchell's theory of the business cycle (which is to appear in a subsequent volume), constitutes one of the outstanding contributions to economic literature of recent years and is worthy of the most careful study. An analysis of the business cycle prepared for the Harvard Economic Society by W. L. Crum and appearing in *The Review of Economic Statistics, Supplement,* September, 1925, is clear and concise and contains an outline of the different phases of the cycle which is helpful. A series of interesting and, for the most part, valuable readings by prominent writers is to be found in L. D. Edie, *The Stabilization of Business* (New York, 1923). Much valuable material of a statistical and analytical nature appears in C. Snyder, *Business Cycles and Business Measurements* (New York, 1927), which has been cited in a number of previous connections.

F. C. Mills, *The Behavior of Prices* (New York, 1927), ranks with Mitchell's new edition of *Business Cycles* as an important contribution to economic literature. It contains a careful and thorough statistical treatment of commodity prices as they actually exist and should serve as a most valuable aid to students of business cycles and the price system.

The present chapter is not concerned with theories of the business cycle, but merely with the relation between the cycle and the purchasing power of money. For this reason, the bibliography cited has been brief. It may be mentioned, for the benefit of any who are interested in theoretical explanations of the business cycle, that Dr. Mitchell's new edition of his work on business cycles (cited above), contains an excellent résumé of existing theories in Chapter I, Section IV.

CHAPTER XV

THE CONTROL OF CREDIT

Introduction.—Before the establishment of the Federal reserve system, which began operations in 1914, the banking system of the United States consisted of many thousands of individual banks, state and national, under no central control except that supervisory regulation which was exerted by the state superintendents of banks and the Comptroller of the Currency. In large measure, each banker was governed by his own judgment and the reserve requirements of the banking laws in determining the extent to which he should expand his loans. Usually, in periods of active business, loans and discounts would be extended until the bankers became somewhat worried about their reserve position, when they would curtail their lending operations and assist thereby in bringing about the termination of the upswing of business. Under such circumstances there could be little organized control of credit. The Federal Reserve Act provided for a substantial amount of centralized credit control, but it was impossible for the reserve banks to exert much influence on the expansion of credit in the period before the United States entered the War for reasons which will be pointed out shortly. After the United States entered the War, the Federal Reserve Board was subjected to the dominance of the Treasury's war finance policy, and it was not until the end of 1919 that any real effort toward the control of the credit structure of the country was possible. It has already been pointed out, in

the previous chapter, that the sharp increases in reserve bank rates which took place at the close of 1919 and the beginning of 1920 assisted in bringing the post-war business boom to a close. It is only since 1919, therefore, that the reserve banks have really had any opportunity to exert some measure of credit control, or to develop any policies in this regard. The succeeding discussion will consequently have to do with the developments which have taken place along this line since the recovery of business in 1922.

Methods of credit control.—The Federal Reserve Board, acting together with the Federal reserve banks, has three possible methods of controlling credit expansion. The first is by means of *publicity and warning.* If the Board feels that credit is expanding too rapidly, it may issue warnings to the member banks in the form of circular letters which set forth the situation in detail and point out the advisability of using somewhat greater caution in the extension of new loans and discounts to customers. The effectiveness of this method is not apt to be great. It depends entirely upon the attitude adopted by the member banks, and, in a period of buoyant business optimism when the member banks see many opportunities for making added loans and increasing their profits, these institutions are likely to pay scant attention to any such warnings as may be distributed by the Federal Reserve Board.

Adjustment of the discount rate.—A second method of exerting control is by the manipulation of the discount rates of the Federal reserve banks. Each reserve bank sets its own rate of discount, but such rates are subject to the approval and determination of the Federal Reserve Board, so that the latter body is in a position to insist on a rate policy on the part of the various reserve banks which will, in the Board's estimation, best serve the interests of the entire country. The theory behind this method of control is that the reserve banks can make borrowing by member banks

more or less profitable by lowering or raising their discount rates, and that they are thus able to exert a real stimulus or check to the lending operations of the member institutions.

Direct rationing of credit.—The third possible method of credit control is for the reserve banks to ration credit directly to the member banks. Such a method would undoubtedly be effective, as under it the reserve banks would simply refuse to extend any more credit to those member banks which had made use of their allotments. There can be no doubt, however, but that such rationing of credit is repugnant to the spirit of the Federal Reserve Act and to the ideas of the member banks, so that it cannot be considered as an important present-day method of credit control. Since advisory methods frequently do not secure the desired results, and since the direct allocation of credit is not deemed advisable, the adjustment of discount rates stands out as the only effective and desirable means of control of the credit situation by the Federal reserve banks. It is accordingly necessary to consider this particular method more fully.

Borrowing from the reserve banks essential to effective credit control.—The old National Bank Act required national banks to maintain certain minimum reserves and provided that, whenever the reserves of any such bank should fall below the minimum required, "such associations shall not increase its (*sic*) liabilities by making any new loans or discounts or otherwise than by discounting or purchasing bills payable at sight, nor make any dividends of its profits until the required proportion . . . has been restored."[1] Consequently, once a national bank had expanded its loans and discounts to this point, no further expansion was immediately possible. Discount rates were raised in some cases as the limit of expansion set by the minimum reserve requirements was approached, but, once the limit had been

[1] *National Bank Act as Amended, Etc.* (Government Printing Office, 1925), p. 62.

reached, expansion was no longer legally possible. The present reserve requirements for member banks of the Federal reserve system are similarly worded, but the situation is very much altered by the fact that a member bank may make good its discrepancy in reserves by rediscounting eligible paper with its Federal reserve bank, or by discounting its own promissory note secured by such paper. It is at this point that the member bank comes under the influence of the Federal reserve bank's discount rate. Theoretically, once a member bank has to borrow from its reserve bank, the latter institution, by setting a sufficiently high rate of discount, can make this borrowing unprofitable to the member bank which will, in turn, raise its own rate to customers and thus cut down the rate of credit expansion. If most of the member banks are borrowing from the reserve banks, the expansion of credit in the banking system as a whole will be curtailed in this fashion.

It seems apparent, then, that member banks must be borrowing from the reserve banks if an increase in the rates of the latter is to have any effect on the expansion of credit. At times, conditions may be such that it is possible for member banks to overexpand their credit operations without calling on the reserve banks for assistance. Such was the situation in the years just preceding the entrance of the United States into the Great War. Between the beginning of 1915 and the end of 1916, over $1,000,000,000 in gold came into this country and most of it was first lodged in the hands of the member banks. These banks were enabled in this fashion to build up their reserves and expand their loans and discounts to a very considerable extent without calling on the Federal reserve banks for assistance. The Federal Reserve Board, as noted above, sent out letters of warning against too rapid an extension of loans and discounts by member banks, but expansion proceeded merrily apace in spite of these warnings, and the reserve banks were power-

less to curb it. Since the War, however, the Federal reserve banks have been able to supplement their discount rate policy with a judicious use of their open market powers. This was not possible in the years 1915 and 1916, as the reserve banks, although permitted to buy and sell certain paper and securities in the open market, had not acquired any large amount of open market holdings at that time, and were consequently unable to make use of this supplementary device. The situation at present is distinctly different in this respect, and the use of open market powers in connection with the control of credit has become so important as to warrant rather detailed description.

Open market powers of the Federal reserve banks.—The Federal Reserve Act (Section 14) permits the reserve banks to buy and sell in the open market gold coin and bullion, bonds and notes of the United States government, certain bills, notes, and warrants of political subdivisions, and bills of exchange and bankers' acceptances. The reserve banks have taken it upon themselves to maintain a market for the latter paper and stand ready to buy desirable acceptances at all times on this account. Consequently, the amount of paper which is held by the reserve banks is not, strictly speaking, subject to use in connection with the control of credit because it cannot be bought and sold at will by the reserve banks in view of the policy which they have adopted with respect to the maintenance of the acceptance market. Their dealings in government bonds and notes, however, are subject to no such limitation. They may be bought or sold at any time within the discretion of the reserve banks and the Federal Reserve Board, who act together and adhere to a uniform policy. It is with the sales and purchases of such securities that the reserve banks supplement the use of the discount rate in controlling credit expansion.

Open market dealings as a supplement to rate policy.—Suppose, for example, that the Federal Reserve Board and

the reserve bank authorities are of the opinion that credit is expanding too rapidly in the banking system and that the rate of expansion should be cut down. An increase of discount rates would be in order, but suppose, further, that the member banks are not borrowing from the reserve banks to any appreciable extent, in which case the advance in discount rates will have no deterrent effect until such time as the member banks have expanded to the limit of their own funds and find it necessary to obtain advances from the reserve institutions. How can the reserve banks bring the member institutions under their control before credit expansion has proceeded to these lengths? They can do so by selling some of their open market holdings. This has the effect of drawing funds out of the market, for the Federal reserve banks must be paid by those who buy the securities from them, whether they be individuals, business houses, or banks. In the first two cases, the reserve banks will be paid with checks drawn against the buyers' accounts in the member banks. The reserve banks, upon receiving these checks, will debit the reserve accounts of the member banks on which they are drawn. When a bank buys some of the securities offered by the reserve banks, it will pay for them with a draft drawn against its reserve account, which will result in a debit to that account at the reserve bank. The reduction in member bank reserves thus effected makes it necessary for the member banks to borrow from the reserve banks in order to maintain their legally required reserves, and, in this manner, the former institutions are brought under the influence of the reserve banks' higher discount rates. In just the opposite fashion, the purchase of securities by the reserve institutions tends to pump funds into the market and thus to make for easier money conditions. If the reserve banks had held large amounts of government securities in 1915 and 1916, as they have at many times since the War, they could at least have prevented the expansion of credit from

taking place as rapidly as it actually did by selling large blocks of these securities and withdrawing funds from the market. Not having possession of any large amount of open market holdings at that time, they were helpless to put a stop to the rising tide of expansion.

Open market operations a system matter.—It is important for the best interests of the banking system that the purchase and sale of open market securities be conducted for the system as a whole. In order thus to co-ordinate the open market operations of the reserve banks, so that the latter should not compete with one another in making their purchases and sales, an open market investment committee consisting of the governors of five of the reserve banks was organized in 1922, and has since directed the open market operations of all the reserve banks.[2] The necessity for such centralized control may be made clear by an illustration. The sale of a large block of securities by one of the midwestern reserve banks, for example, would very likely be evidenced by debits to the reserve accounts of member banks in New York City for the most part, since the securities would probably be sold in the New York market, or, if not actually sold there, might be paid for with drafts on New York banks. The tightening of the New York money market, however, bears an important relationship to credit conditions throughout the rest of the country. New York City is the financial center of the United States, and surplus funds from all other sections tend to flow there for investment. As these funds are needed by interior banks to meet the demands for credit on the part of their own customers, they may be withdrawn from New York for this purpose, or may be left there, while the needs of their customers are met by borrowing from the reserve banks. A tightening of

[2] Burgess, *The Reserve Banks and the Money Market*, pp. 215–216. The committee at first consisted of the governors of four of the reserve banks. A fifth was added later.

money rates in the financial center, therefore, makes it profitable to leave funds there and to meet local needs by borrowing from the district reserve bank. If this is done, however, member banks are brought under the influence of the reserve bank discount rates. It should be clear from what has been said that the purchases or sales of open market holdings by any particular reserve bank may have a rather far-reaching effect upon the credit situation throughout the country as a whole, and it is for this reason that the open market dealings of the reserve institutions should be properly co-ordinated.

The old theory of credit expansion.—Having shown how the Federal reserve banks, through their open market operations, are ordinarily able to bring the member banks of the system under the influence of their discount rates, the question next arises as to whether or not an increase in discount rates actually tends to curtail credit expansion in accordance with the theory of discount rate control. The answer to this question depends, in part, upon how large an amount an individual member bank can lend on the basis of a given addition to its reserve which has been obtained through borrowing at the reserve bank. The old theory of the expansion of bank credit was that a bank which acquired, say, $1,000 of surplus reserves could expand its loans and deposits to several times this amount, the extent of the possible expansion depending upon the ratio of reserves to deposits which the bank was required, or accustomed, to maintain. Thus, with a reserve ratio of 10 per cent, a tenfold expansion of loans and deposits was deemed practicable. If this theory were correct, it is clear that little control over credit expansion could be exerted by the reserve banks through increasing their discount rates, for any member bank would be willing to pay a high rate, say 10 or 12 per cent, on funds borrowed from the reserve bank if it were thereby enabled to lend to customers, even at a much lower rate, some ten

times the amount borrowed from the reserve institution. Fortunately for the case of reserve bank control of credit expansion through discount rate advances, this theory will not hold water.

An individual bank cannot make manifold loans.—Actually, a member bank can lend little, if any, more than it borrows from the reserve bank. When a bank grants a loan to a customer and credits the deposit account of the latter with the proceeds of the loan, its deposits are temporarily increased. But the business man borrows, as a regular thing, because he has payments to make, so that he wants to make immediate use of the funds he has borrowed. Consequently, these deposits which result directly from loans are checked against almost at once, and the checks are sent far and wide throughout the country and are deposited in other banks which will send them back to the lending bank for payment. A lending bank must therefore expect to pay in cash, or claims to cash, at the clearing house the full amount of such loans as it has made, and that within a comparatively few days after these loans have been granted. It is accordingly patent that any individual bank which attempts to lend ten times the amount of its surplus reserve will shortly be confronted with adverse clearing house balances which it will be quite unable to meet.

If any considerable number of the checks drawn by borrowers are redeposited in the lending bank, the latter institution will not, of course, be subjected to a loss of reserve through the payment of such checks at the clearing house. About 90 per cent of all checks drawn, however, are deposited in other banks and come back for payment through the clearing house,[3] so that the statement that a member bank can lend

[3] Debits to individual accounts averaged 114 per cent of clearings for the years 1919–1922, and the two series corresponded closely in their fluctuations during this period. See Snyder, *Business Cycles and Business Measurements*, pp. 134–135. This shows clearings to have been 88 per cent of debits, but, since retail payments by indi-

only the amount which it borrows from the reserve bank is approximately correct. This is quite different from the old theory, according to which an individual bank could extend loans amounting to several times any surplus reserve it might have. Of course, the reserve which one bank loses as a result of its lending operations results in deposits in other banks which, in turn, may increase their own loans by approximately the amount of such deposits, after setting aside the necessary reserve. They then lose reserves to still other banks, and so it goes until the deposits of the entire banking system amount to some ten times the aggregate reserve holdings of the individual banks. In the system, loans and deposits can be expanded to several times the reserves which are available, but, *for the individual bank,* such manifold expansion is not possible, and the rates of the Federal reserve banks can be adjusted so that borrowing from these institutions when their rates are high is not a profitable process.[4]

Reserve bank rates below rates to customers.—However, the discount rates which the reserve banks have actually maintained have been, for the most part, below the rates charged by banks to their customers. The following chart shows the relation between the rates charged to customers of Cleveland banks on prime commercial loans and the discount rate of the Federal Reserve Bank of Cleveland during the years 1926–1927, and this relationship may be taken as typical for all Federal reserve districts at practically all times. Because this is the situation, it has frequently been claimed that any moderate increase in reserve bank rates

viduals such as monthly accounts at stores, etc., seem more likely to result in redeposits in the banks on which the checks are drawn than do wholesale payments, most of which would be made to firms outside the same city, we have placed the proportion of checks against loans which are not redeposited at 90 per cent, and this would seem to be a conservative estimate.

[4] This theory of credit expansion was first set forth in detail in Phillips' *Bank Credit,* Chapter III.

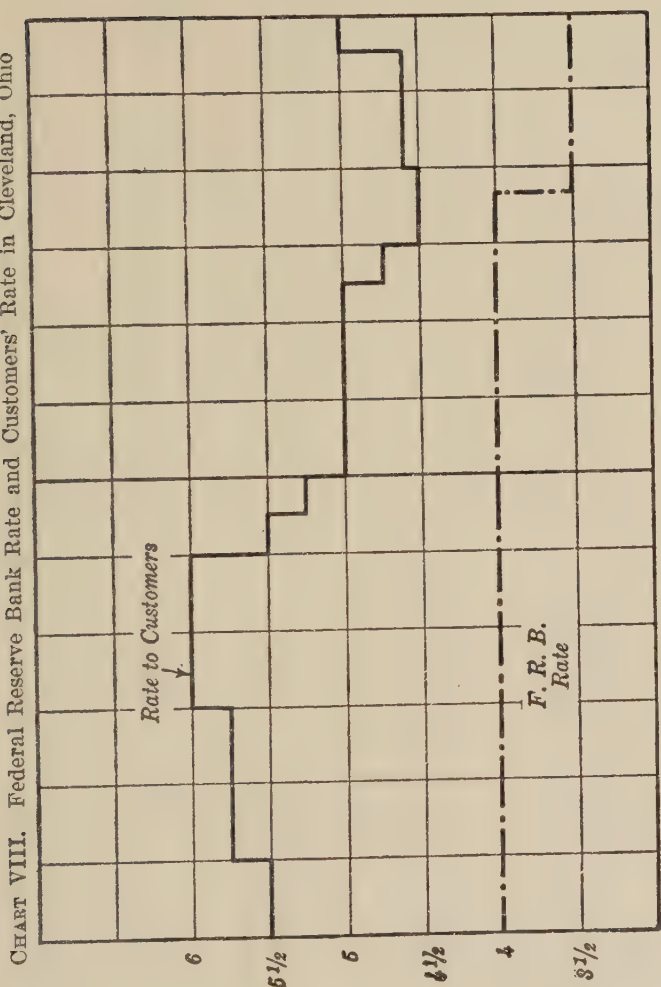


CHART VIII. Federal Reserve Bank Rate and Customers' Rate in Cleveland, Ohio

Source of Data: *Federal Reserve Bulletin.*

could have little effect on the lending operations of member banks. If, for example, the member bank charges its customers 6 per cent, and can borrow at the reserve bank at 4 per cent, an increase in the latter's rate to 4½ or 5 per cent would, it is claimed, have practically no effect on credit extension by the member institution, for it would still be getting more on the funds loaned than it has to pay at the reserve bank, so that further lending at 6 per cent would continue to be profitable. This line of argument overlooks entirely the fact that a bank does not make a net profit equal to the amount received by way of income on its loans and other investments. The bank, as a going business, has expenses to meet and its net earnings are very different in amount from its gross receipts. From the cost accounting standpoint, the expense incident to the making of loans consists of the cost of the loan department, plus a certain proportion of the cost of keeping the books (such as debiting and crediting the accounts of borrowers as deposits are checked against after the loan is made and built up shortly before it matures), plus a certain allocated proportion of general and administrative expense, plus the loss of interest on the reserve maintained against deposits, plus the interest which is paid to customers on deposits. If the funds loaned are borrowed from the reserve bank, two adjustments must be made in the foregoing cost analysis. Interest, or discount, paid to the reserve bank must be substituted for interest paid to depositors. Further, an adjustment must be made to take account of the fact that no reserve has to be maintained against bills payable to the Federal reserve bank, while a reserve of 10 per cent, on the average, must be kept against demand deposits.

Comparative cost of making loans on reserve bank funds and on deposits.—These two adjustments work in opposite directions as regards the cost of making loans on funds borrowed at the reserve bank. The substitution of discount

paid to the reserve bank for interest paid on demand deposits increases the cost of the loan in practically every case. Many commercial banks allow no interest on demand deposits, while those which do pay interest limit the payment ordinarily to 2 or 2½ per cent upon balances averaging $500 or more. Some banks make specific interest agreements with individual depositors, others have fixed rules for all. There is little uniformity of practice in this respect. Of course, in the case of the banks which pay no interest on demand deposits, the discount paid to the reserve bank adds more to the cost of making loans than in banks which do pay such interest. However, whether the bank pays interest on demand deposits or not, the expense of making loans is increased when the funds are borrowed from the Federal reserve bank for this purpose, since the rate paid on demand deposits is small at best. During the last six months of 1926, for example, interest paid on demand deposits averaged but 1.5 per cent for the member banks of the Federal reserve system.[5] Opposed to this tendency toward increased cost is the fact that member banks do not have to keep a reserve against funds borrowed at the Federal reserve banks. If a bank with a 10 per cent required reserve receives a deposit of $10,000, it must retain $1,000 as reserve against this deposit. When it borrows $10,000 at the reserve bank, it can lend the entire amount. On a 90 day loan at 6 per cent, the member bank can thus make $15 on this amount which would not have been possible on the basis of deposited funds.

It is now necessary to balance these two forces against each other in order to determine which is the more powerful. Take, first, the case of a bank that pays 1½ per cent interest on the average to its demand depositors, and suppose a discount rate at the reserve bank of 4 per cent. The interest cost incidental to the use of a $10,000 deposit for 90 days

[5] *Federal Reserve Bulletin*, July, 1927, p. 461.

would be $37.50. The cost of obtaining a like amount from the reserve bank would be $100 for the same period. But $15 would be added to the bank's earnings because it would have to keep no reserve in the latter case. Consequently, the net loss to the bank from the use of reserve bank funds as compared with deposits would be $47.50. In other words, lending on funds borrowed from the reserve bank is considerably more expensive than lending on the basis of funds obtained from depositors. Specifically, borrowing from the reserve bank to lend to customers costs 1.9 per cent more on the $10,000 for 90 days than to lend deposits. If we take the case of a bank that pays no interest to demand depositors, the added cost will amount to 3.4 per cent of the $10,000 for 90 days when the funds are borrowed from the reserve bank. The first figure is probably more nearly correct, however, since the interest rate used in the example was the same as the average rate paid to demand depositors by all member banks in the period noted.

Borrowing at the reserve bank is not generally profitable. —The exact figures given herein are subject to some slight qualification. Funds borrowed from the reserve bank are immediately credited to the reserve account of the borrowing bank, while deposited funds are frequently in the form of checks on other banks which have to be collected at some expense (at least a loss of interest) to the depository institution. In spite of this, the saving in lending costs to the member bank by borrowing from the reserve bank is much more than offset by the increased expense, and there can be little doubt that borrowing from the reserve bank at 4 per cent and lending to customers at 6 per cent is not profitable on a sound cost basis. This conclusion is upheld rather decidedly by the earnings and expenses statements of all member banks combined for the year 1926.[6] These statements show that the net addition to profits for all member banks

[6] *Ibid.*, p. 463.

amounted to $1.37 on each $100 of earning assets, or 1.37 per cent. Of course, this figure includes earnings on all investments, but another table shows[7] that the interest received on loans amounted to 5.5 per cent, while the income from investments was 5.0 per cent. These two items together constituted 98 per cent of the total investments, the other 2 per cent representing balances with other banks on which interest was received. It is probably useless to try to estimate the net earnings on loans and discounts from these data, but, if a very liberal allowance is made in favor of this item as regards expense, the net on loans and discounts would not amount to more than 1.85 or 1.90 per cent. It is true that the expenses shown in the statements include interest on money borrowed at the reserve banks, but this item (money borrowed) is small as compared with loans and discounts and any discrepancy in this connection is more than cared for by an allowance of 1.90 per cent net on the loans and discounts item. Our conclusion must still be that borrowing from the reserve bank at 4 per cent and lending to customers at 6 per cent would not only not be profitable, but possibly slightly unprofitable. Under such circumstances, an increase in the reserve bank discount rate to 4½ or 5 per cent would make borrowing at those institutions still more unprofitable, and should cause member banks to take some action toward decreasing their rate of credit expansion.

Many member banks do not raise their rates to customers.—The action which member banks might be expected to take would be to increase the rate at which loans were made to customers. Yet, frequently, this is not done. A given bank may charge one customer 6 per cent, another 7 per cent, and still another 8 per cent on credit advances, depending upon the condition of the customer's business, his bargaining power, and the degree of risk involved, but, for a given customer, the same rate is likely to be charged year after year,

[7] *Ibid.*, p. 461.

subject to change, of course, if one of the factors mentioned changes, but quite regardless of business or credit conditions. The author had occasion at one time to examine the interest records of a certain large bank in the southwest. These records showed that the same rates had been charged to certain customers, year in and year out, from 1912 to 1923 with scarcely a single exception. Another large bank in an Ohio city made it a policy to charge 6 per cent during the entire War and post-war periods, regardless of the position of the discount rate at the Federal reserve bank. In fact, this practice is more typical than that of changing discount rates to meet changes in the business and credit conditions of the community. Carl Snyder states that "there are literally thousands of banks in the United States whose nominal rate to the customers, year in and year out, is practically unchanged at 6 per cent, or 7 per cent, depending upon the locality and sometimes state laws." [8] This situation is not so likely to prevail in New York, Chicago, and a few other financial centers where greater variability in interest rates is to be found, but for the larger part of the country, interest or discount rates to bank customers are unquestionably rather rigid over extended periods of time.

Expansion curbed in spite of fixed rates to customers.— This fact, of course, immediately raises a question concerning the effectiveness of changes in the rates of discount at the reserve banks in controlling the credit situation. If rates to customers are not raised, will they not continue to demand advances from the banks without regard to the attitude of the reserve banks as indicated by the latters' discount rates? Leaving the question of the psychological effect of rate changes to one side, the answer must be in the affirmative. Customers will continue to demand loans, but the banks may fail to grant them. As long as the banker has unused deposits which he can lend, he is likely to continue

[8] *Business Cycles and Business Measurements*, p. 209.

to grant loans which seem to be reasonably safe and profitable, but when no further deposits are available, so that added loans must be made on the basis of funds borrowed at the reserve banks, the profit is eliminated and, if the reserve bank rate is fairly high, a loss may even be incurred on such extensions of credit. It is not reasonable to suppose that no attempt at curtailment would be made by the banker under such conditions. Of course, he will not refuse to lend entirely, for this would mean the loss of good customers and decreased profits in the long run. But he will probably become more cautious in granting loans, cut out added credit extensions to outsiders who are not regular customers, and attempt to pare down the amounts loaned to his regular borrowers to the minimum which is compatible with their needs and necessities. Thus, credit expansion is curbed, not by raising the discount rate to customers, but by a sort of process of credit allocation which the banker adopts in his own self-interest.

Effectiveness of increases in rates to customers.—Banks in the financial centers may use this same method at times, but they more usually resort to raising their own discount rates, as was pointed out, to protect their profits against encroachment by an increase in the rate at the reserve bank. With the increased use of cost accounting methods by banks of all sizes, a further resort to this latter method may be anticipated, especially in cities of any considerable size. If this is done, credit expansion is curtailed, presumably, by means of higher prices for accommodation rather than by means of the allocation process mentioned in the last paragraph. Will such increases in rates to customers be effective to secure the desired curtailment? There seems to be doubt in the minds of some. Snyder writes,[9] "The direct effect of interest rates upon the course of the business cycle seems less than many have supposed;

[9] *Ibid.*, p. 229.

. . . In the main the more important changes in business seem to take place before the movement of interest rates could be of any material importance. All of which has an important bearing upon the problem of stabilizing trade or moderating the extremes of the business cycle by means of changes in the bank rate." This evidently is meant to imply that changes in the bank rate are fairly useless in the control of business expansion through the regulation of the amount of credit. Can anything be said on the other side of the question? While it is true, as Snyder points out in another place,[10] that bank interest forms such a small part of the cost of doing business for the run of producers as to be of little moment, this is not true in the case of the bulk of speculative activity. Speculation, whether in goods or securities, is done largely on a credit basis. Here, interest is practically the sole cost of doing business. When merchants stocked up heavily with goods on the up-swing of the typical pre-war cycle, because they expected the price of these goods to advance, they carried the goods almost entirely by means of credit advances. After prices had begun to mount rapidly, an increase of moderate amount in the discount rate (the price of carrying the goods) naturally would have had little effect, but an increase coming before the rise in prices became pronounced would unquestionably have a strongly deterrent effect on such operations.

In the main, just such speculation in goods is to be blamed for some of the major difficulties which have occurred during the up-swing of the business cycle. The increase in forward ordering many times has led manufacturers to overestimate the intensity of the consumers' demand for their goods with resultant misguided and misdirected production. It seems reasonable to suppose that increases in discount rates, if made effective at an early enough period in the cycle, would put a damper on this

[10] *Ibid.*, p. 227.

speculative propensity of merchants and would result in a more reasonable adjustment of productive activity on the part of manufacturers. This being the case, it would make little difference whether bank interest were a minor cost to the manufacturers themselves or not.

The feasibility of credit control.—The foregoing analysis would seem to point definitely to the feasibility of credit control when credit is expanding too rapidly. On the other hand, the possibility of bringing about an expansion of credit in times of business inactivity is much less certain. Discount rates may be lowered, but that, in itself, is not always conducive to increased borrowing. A great deal depends upon the temper of the business community, and over this factor the banks have little control. While it is possible to alter the attitude of speculators in a period of rising prices and increasing speculation by increasing their cost of doing business, it is not so easy to change the attitude of business men toward the production of goods when they feel that such production may subject them to losses because of falling prices. Furthermore, unless business men are in a speculative frame of mind, they will not apply for more loans than necessary to carry on their business, even though credit be plentiful and the rate of discount low.

The possibilities of credit control may, perhaps, best be estimated in relation to the demand for and the supply of money. If there were no banking system, an increase in the demand for money to hold on the part of any group in the community would result in an increase in the value of money, provided the supply of money remained unchanged. There are likely to be other groups in the community who may wish to obtain more money than they have, not to hold, but to spend for goods, securities, etc. Through the banking system the money which is being held by certain groups or individuals is made available by way of loan for others to spend, so that the decrease in the price level which would

occur if no banking system were present is thereby prevented. If there is a *general* increase in the demand for money to hold, however, the banks are unable to find borrowers for all their funds and the result is a fall in the price level and an increase in the reserves of the banks above the amount required by law or the good judgment of the banker for reserve purposes. This explains why the banks are able to control the situation somewhat when the demand for money to hold is decreasing, but are unable to exert much influence when it is increasing, or has increased. The banks can exert control only over the supply of money which is demanded by borrowers to spend, and if business men, speculators, or others do not want to borrow for this purpose, the banks are helpless to remedy the situation by means of credit control.

Conclusion.—As far as member banks of the Federal reserve system are concerned, it is safe to say that, since they are profit-making institutions primarily, they will attempt to keep their funds loaned out or invested to the full extent permitted by law and safety at all times. It is therefore unreasonable to expect them to exert much pressure in the way of credit control except in such cases as involve the question of profits or of solvency. But the Federal reserve banks are not primarily profit-making institutions and may turn their attention toward the control of the credit structure without considering the possible effects of their policies on their profits. The question then arises as to whether or not such control is desirable. The answer to this question necessitates an examination of the objects of credit control, for which purpose we shall require another chapter.

QUESTIONS FOR STUDY

1. What are the three methods by which the reserve banks may exert some control over credit expansion?
2. Which of the three methods mentioned above is the only one which deserves serious consideration? Why?

3. "The reserve banks cannot hope to control the expansion of credit unless the member banks are borrowing from them." Show that this must necessarily be the case.

4. How do the reserve banks make use of their open market powers to bring member banks under the influence of their (the reserve banks') discount rates?

5. "The use of open market operations as a supplement to discount rate control is effective only as a system matter." Explain what is meant and why it is true.

6. What is the old theory of bank credit expansion? If this theory were sound, no effective control of credit expansion through the adjustment of discount rates would be feasible. Why not? What is the correct theory of bank credit expansion?

7. "It has been contended that the maintenance of discount rates by the reserve banks at a point below the rates charged by member banks to customers makes permanent borrowing at the reserve banks profitable." Show that, with a customers' rate of 6 per cent and a discount rate at the reserve bank of 4 per cent, a member bank would not find borrowing at the reserve bank profitable on a sound cost basis.

8. "The majority of member banks do not change their rates to customers, year in and year out, regardless of credit conditions." Under these circumstances, how would an increase in reserve bank rates tend to curb credit expansion?

9. "In the case of banks which do raise their rates to customers, the increase in rates will probably have little effect in curtailing the expansion of credit as bank discount is a minor cost to the majority of producers." What can be said on the other side of the question?

10. What can you say as to the feasibility of credit control when credit is expanding too rapidly? What about the possibility of bringing about an expansion of credit by this means in times of business inactivity?

BIBLIOGRAPHICAL NOTE

Since the material in this and the following chapter are of similar nature, the present note will suffice for both chapters. The technique of credit control and the extent of its effectiveness are discussed in practically all the more up-to-date works on banking and the Federal reserve system. In particular, W. R. Burgess, *The Reserve Banks and the Money Market* (New York, 1927), and R. G. Rodkey, *The Banking Process* (New York, 1928), may be mentioned as containing particularly good treatments of this part of the subject. A number of ideas which are enlarged upon somewhat in the present work have been derived from these two volumes.

C. A. Phillips, *Bank Credit* (New York, 1924), contains the original detailed exposition of the modern theory of credit expansion. Rodkey (cited above) also has a detailed treatment of this theory and introduces some pertinent qualifications of Phillips' conclusions which do not, however, affect the fundamental nature of the theory.

The objectives of credit control have received wide discussion of late years in both books and pamphlets. Of the books on the subject, J. M. Keynes, *Monetary Reform* (New York, 1924), seems to have attracted the widest attention. R. G. Hawtrey, *Monetary Reconstruction* (London, 1923), also contains much interesting material. Among pamphlets and articles, B. M. Anderson, Jr., *Chase Economic Bulletins* (March 23, 1925, and October 29, 1927) are worthy of careful attention. Reprints of practically all noteworthy articles on the subject of price control may be obtained from The Stable Money Association, 104 Fifth Avenue, New York City. The objectives which the Federal Reserve Board and the reserve banks have actually worked for in their control of the credit situation are to be found in *The Annual Report of the Federal Reserve Board* for various years and, to some extent, in *The Federal Reserve Bulletin.*

Valuable quantitative data, worked into usable form through the application of proper statistical methods are available in F. C. Mills, *The Behavior of Prices* (New York, 1927), and C. Snyder, *Business Cycles and Business Measurements* (New York, 1927). W. C. Mitchell, *Business Cycles* (New York, 1927) also contains statistical data of value in the present connection as well as pertinent criticisms of the various available indexes.

CHAPTER XVI

THE DESIRABILITY OF CREDIT CONTROL

Introduction.—In undertaking a critical estimate of the desirability of credit control it is necessary to know just what it is that such control proposes to accomplish, for the control of credit may be advocated by different writers with a view to attaining a variety of ends. Once we have become acquainted with the aims which it is intended to achieve through the instrumentality of the control of bank credit, we shall be in a position to criticize these aims from the point of view of their relative desirability and also, to some extent, from the standpoint of their possible accomplishment through the medium suggested. In the present chapter, therefore, we shall first examine the objects of credit control and then pass judgment on their worth and possible attainment.

The Objects of Credit Control

Three main objects.—The advocates of credit control usually have in mind one of three main objects. The first of these is of a purely banking nature and may be termed *the maintenance of a sound banking structure.* The second object is somewhat similar, but has enough distinct characteristics to entitle it to separate treatment. This aim we shall call *the prevention of overexpansion.* The third object of credit control advocates the use of the banking machinery

for a non-banking purpose, namely, *the control of the price level.* Before considering each of these in detail it should be noted that such control of credit as may be attempted must be lodged in the hands of the central bank (or banks). It is useless to suppose that individual banks, organized on a profit-making basis, will exert their efforts toward non-profit-making ends. It is in the central banking machinery of the country, then, that reliance must be placed for whatever measure of control may be undertaken through the agency of the banking system. With this caution in mind, we may examine the objects mentioned.

The maintenance of a sound banking structure.—If a sound credit structure is to be maintained in the banking system, it is necessary that the banks of the system should keep sufficient reserves to meet all demands for payment which may, in any likelihood, arise, and that they should maintain a reasonable degree of care in the investment of their depositors' funds. In a broad sense, these matters may be left to the individual initiative of the bankers themselves, as their desire to remain solvent should prevent them from expanding their lending operations too far and from seeking profits at the expense of safety. It would, therefore, appear that a central bank with some measure of regulatory authority would find it unnecessary to exert any direct control on the individual bankers in this respect. This, however, is not always the case. At times, the individual banker's desire for profits may lead him to expand his lending operations to a point where his reserve is reduced below the level of safety, and he is especially likely to do this if he can borrow additional funds from the central bank to bolster up his reserve position. At times, also, this same desire for profits may lead the banker to make loans or investments which are not quite as liquid and secure as they should be, but which, largely because they lack these qualities, yield a high rate of return on the amount invested.

Such unfavorable factors in the banking situation, if they develop at all widely, may be controlled in some measure by the central bank. As long as the individual banks do not find it necessary to appeal to the central bank for advances of funds, little can be done by the latter institution. But, when the bankers of the country have come to rely upon the central bank for support in the way of loans, the extent to which further expansion of bank credit may proceed is largely in the hands of the central institution. If the latter's reserves are large, it may permit an added expansion of credit to take place by lending to the individual banks, but it will always discourage the placing of insecure or non-liquid loans by the commercial banks by refusing to discount any paper which is not of the very highest type. If the central bank's reserves are becoming at all impaired, however, it will attempt to deter further borrowing by the individual banks by raising its rate of discount, thus making such borrowing unprofitable. In fact, when credit is expanding at all rapidly in the banking system, the discount rate will be raised at the central bank long before such action would be considered necessary by an individual bank. The central bank is in a very responsible position, since it holds the final or ultimate gold reserves of the country, and it should be obvious that the maintenance of large reserves by this institution is essential to a sound banking situation in the country as a whole.

Control of the money market.—Besides its function of administering the ultimate banking reserves of the country, the central bank also assists in the smooth running of the banking system through its control of the central money market of the country. In the United States, for example, it is the aim of the Federal reserve banks, and especially of the Federal Reserve Bank of New York, to prevent unwarranted disturbances in the money markets of the country when it is possible to do so. To illustrate this, there would

naturally be a tightening of the money market on quarterly tax payment dates if the Federal reserve banks took no action to prevent it. On these dates large amounts of checks are drawn in favor of the United States government, and the payment of these checks would naturally reduce the reserve accounts of the member banks on which they were drawn and result in a tightening of money rates in the call money and commercial paper markets. To avoid this, the Federal reserve banks buy securities in the open market to an extent sufficient to prevent the loss of reserves which member banks would otherwise suffer. Shortly thereafter, as the government begins to disburse the funds which it has received in payment of taxes, the reserve banks sell a sufficient amount of securities to prevent the government disbursements from unduly easing the money market and encouraging an increase in speculative activity.

Again, in the latter months of 1927, large foreign shipments of gold occurred. Such shipments originate with the member banks who obtain the necessary gold by drawing down their reserve balances with the Federal reserve bank. The reduction in reserve balances which such action would normally have incurred would have led to a tightening of the New York money markets at a time when the reserve bank authorities wished to maintain the *status quo*. Consequently, the reserve banks offset the effect of these gold shipments by purchasing large amounts of securities in the open market. The payment for these securities increased member bank reserves to the same extent that gold shipments tended to decrease them, and the money markets continued to operate without disturbance from the large exports of gold. Through the judicious purchase and sale of open market securities it has been possible for the Federal reserve banks to avoid disruptions in the money market which, without being disastrous, would have interfered seriously with the smooth and efficient working of the banking system.

The maintenance of confidence in times of emergency.— Among the functions of the central bank in maintaining a sound banking structure is the preservation of confidence in the banking system in time of emergency. A severe business recession, or crisis, may well turn into a financial panic if confidence in the ability of the banking system to meet the situation is lacking. Although the central bank may have raised its rates and discouraged a further expansion of loans at an earlier point in the cycle, it is necessary to meet all just demands for credit or hand-to-hand money once the crisis has arrived. Rates should be kept high to discourage unsound or speculative borrowing, but credit should be made available, through the individual banks, to all sound business houses and all demands for hand-to-hand money, whether in the form of bank notes or gold, should be met without hesitation even at the expense of the central bank's own reserves. If this is done, there will be no loss of confidence in the banking system and the crisis will be weathered in as orderly and undisturbed a fashion as the severity of the industrial maladjustment will permit.

To sum up, the type of credit control which has been discussed in the preceding paragraphs is of a purely banking or financial nature. The central bank exerts control over the situation largely with reference to its own reserve position and to the desirability of preventing undue disturbance in the central money markets. It also makes use of its reserves in time of emergency with the idea of maintaining confidence in the banking structure. This is the sort of control which has been practiced by the Bank of England, and other central banks, for years, and there can be no question but that it is desirable, as far as it goes. There is a question in the minds of some, however, as to whether or not such control goes far enough. Apparently, in fact, these critics are inclined to think that it does not, and we must now turn our attention to one of the other objects

which it is thought can be attained through the control of credit.

The prevention of over-expansion.—The second aim of credit control which we shall consider is the prevention of over-expansion. If over-expansion is defined, as is sometimes the case, as maintaining a sound credit position at all times, there is no difference between this and the object previously discussed. Over-expansion may be thought of, however, as the condition which exists when additional advances by the banks to customers do not result in corresponding increases in the production of goods and services. Defined thus, there will be times at which some difference exists between the maintenance of solvency and a sound credit condition on the one hand and the prevention of over-expansion on the other. The recent situation in the United States (1922–1927) furnishes an excellent illustration of this point. The Federal reserve banks possess large surplus stocks of gold which would be able to support large added amounts of loans on the part of the member banks, yet such a great increase in loans might easily result in the over-expansion of credit as just defined. Once labor and other primary factors of production are fully employed, additional loans to business men can result only in the bidding up of the prices of these factors without any significant increase in the production or distribution of goods. If the banks have large surpluses of available lending power in the form of surplus reserves (reserves in excess of the amount required by law or custom) a rapid extension of loans may very easily bring about a condition of over-expansion without impairing the reserves of the banks to a point which would be dangerous.

On the other hand, improvement in the methods of production, an increased supply of labor, etc., might make possible a considerable extension of existing loans without resulting in over-expansion, yet if the banks have already

reduced their reserve positions to the minimum point compatible with safety, an increase in loans would be impossible, even though it would result in a substantial increase in the production of goods and services. Only by an increase in the total reserves could an augmentation of loans be safely negotiated under such circumstances.

Actions of the central bank to prevent over-expansion.— It is clear from what has been said that over-expansion, as defined, is not strictly a credit phenomenon, but has to do rather with the relation of credit to produced goods and services. In using over-expansion as a criterion for credit control, the central bank would regulate its discount rate and open market operations on the basis of a decision derived from an examination of indexes of production, employment, wages, wholesale and retail trade, car loadings, and other factors pertaining to the production and distribution of goods rather than with reference to the bank's reserve position, although, of course, the latter must always set a limit on the bank's sanction of continued expansion. Carl Snyder's index of the volume of trade, based on 28 groups of series indicative of trade activity, is an attempt to combine into a single composite index all the most important factors which the reserve banks need to refer to in attempting to control the credit situation on the basis suggested.

It is important to note, in connection with both the theory and application of this type of credit control, that the term production is to be used in a wide sense to include all the necessary steps in the productive process from the working up of the raw materials to the purchase of the finished product by the ultimate consumer. Under this concept of production, it would be unwise, for example, to extend credit to manufacturers to assist them in their part of the productive process if the transportation system of the country were unfit for the task of carrying their goods to the wholesaler or retailer with the proper degree of speed and effi-

ciency. Such an action on the part of the banks would result merely in an increase in the amount of manufactured goods which would be piled up in the storehouses of the manufacturers or in the railroad freight yards—goods which could not, in the nature of the case, get into the hands of the final consumer with anything like dispatch. Inefficiency in any one step of the productive process will interfere with the smooth flow of goods to market. To extend added credit to producers in earlier steps simply intensifies the maladjustment by increasing the quantity of goods which cannot readily be disposed of.

The view presented here of the nature of over-expansion shows that the term really applies to industry as much as to bank credit. The question then arises as to how far control of credit with this end in view is either possible or desirable. The answer to this question, however, must be deferred until we have examined the plans of those who would use the control of credit for the purpose of regulating the price level.

The control of the price level.—According to the ideas of an ever-increasing number of interested persons, the ideal criterion by which the Federal reserve banks should determine their credit policy is the stability of the price level. What is meant by the price level appears to be, in the minds of these persons, the general level of wholesale commodity prices as shown by an index number such as that published by the Bureau of Labor Statistics. It is not the intention of such control to interfere with the prices of individual commodities directly, but rather to keep the *level* of commodity prices stable. If the index number which is used as an indicator of this price level goes up, showing, it is claimed, a decline in the value of money, the Federal Reserve Board and the reserve banks would have to take steps to bring the number back to its old position. In similar fashion, steps would have to be taken in the opposite direction to bring about a rise in the index number if it had

fallen below the normal level at which commodity prices were to be stabilized. The means to be used in maintaining a stable commodity price level are, of course, as in the other cases, the alteration of the discount rate and the proper use of open market powers.

Conclusion.—We have now examined the three main objects of credit control and are ready to subject them to critical analysis. The latter procedure involves a study of the desirability of attaining the ends in view and the possibility of doing so by means of credit control. In the critique which follows we shall consider credit control as control by means of the discount rate, supplemented with open market operations. Doubtless more could be accomplished in some cases through the direct allocation of credit by the reserve banks, but the repugnance of this method, both to the public and to the member banks, does not admit it to serious consideration.

Critique of the Objects of Credit Control

The maintenance of a sound banking structure possible and desirable.—That a sound and solvent banking structure should be maintained at all times in the best interests of the community is practically axiomatic and requires no extended discussion. The inability to maintain such soundness in a considerable degree leads to a loss of confidence in the banking system and a general disruption of banking and credit conditions which it is desirable to avoid if possible.

As regards the possibility of this type of credit control, there can be no question of the ability of the central bank to control its own reserve position and, by following sound and conservative banking policies, to maintain confidence in the general banking structure of the country. This does not mean that the central bank assumes responsibility for the soundness of each individual bank in the system, but merely

that, through its own sound position, through its willingness to use its reserves when necessary to meet legitimate demands, and through its ability to prevent disturbances in the money markets, it inspires a general confidence in the banking system which is highly necessary to its efficient operation in most cases.

The prevention of over-expansion: desirability.—The prevention of over-expansion may also be deemed a desirable aim of credit control, although the case is not quite so clear as the preceding one. It may appear to some that the attempt to prevent over-expansion constitutes an unwarranted interference with the free initiative of the business man. Nevertheless, sound banking theory and practice both indicate the self-liquidating loan as the proper type of investment for commercial banks. By a self-liquidating loan is meant a loan the proceeds from which are used to produce and market goods, the sale of the goods furnishing the wherewithal to pay off the loan. On the basis of such a loan policy, any considerable degree of over-expansion is impossible. The central bank should not only attempt to keep its reserves at a large enough figure to maintain confidence in the banking system, but should exert some influence, if possible, over the general nature and soundness of the loans extended by the banks of the system to business men. That is, it should attempt to see that, in general, the credit extended by the banks to their customers results in a general increase in production and not merely in the bidding up of prices of labor, raw materials, etc., which are already fully employed. In taking such action the central bank would really be performing a banking function and could not be criticized as unduly meddling with the affairs of business men.

Possibility.—Regarding the ability of the central bank to prevent over-expansion there is more question. To cite the case of our own banking system, the Federal reserve banks

can exert control only over the amounts borrowed by member banks. It is impossible to control the use to which the latter institutions put their own capital, surplus, and deposits to a greater extent than they are controlled by law in this respect. It is true that some pressure may be brought to bear on the member banks through the judicious use of open market powers, but there remains a tremendous amount of deposits over which the member institutions have practically sole disposal. The prevention of over-expansion depends upon the soundness of the credit policy pursued by these banks in the granting of commercial loans, a policy over which the reserve banks have no more than advisory control. In addition to this, neither the member banks nor the reserve banks can control the demand for money directly. A period of business optimism with a decreased demand for money to hold may cause some rise of prices in and of itself. The mere rise of prices, however, if production continues to increase meanwhile, is not to be considered as over-expansion as it has been defined. Still, the holding of goods by borrowers who have an eye to the further increase of prices and an increased profit may take place in spite of the bankers' efforts to extend strictly commercial loans, and, if it does, some degree of over-expansion may be said to exist.

In spite of these limitations on the power of the reserve banks, a worthwhile amount of control can be exerted in this direction. No alarming degree of over-expansion can take place under usual conditions without additional extensions of credit by member banks of sufficient amount to make reliance on the reserve banks necessary, especially when the latter institutions are able to use their open market powers to advantage to hasten the approach of the time at which member banks find it necessary to borrow from them. Once the member banks are in a position of dependence on the reserve banks for further extensions of credit, the latter are able to exert a significant degree of control.

As stated, the direct control over loans to business men is in the hands of the member banks. The Federal reserve banks can base their action only on general criteria. Enough data of a general sort are available to the reserve institutions and the Federal Reserve Board to furnish an adequate picture of the state of the credit structure for the country as a whole. Indexes of employment, wages, car loadings, volume of production, wholesale and retail trade, and the like, as well as various price indexes, give a comprehensive view of the state of trade and industry. The course of these indexes is analyzed by the statistical departments of the reserve banks and the Board and improvements are constantly being made both in the data used and in the statistical devices by means of which they are interpreted.

Such measures are in the proper direction and tend to furnish the necessary information for the proper prosecution of a policy which aims at the prevention of credit overexpansion. As long as production is on the increase; as long as the transportation system is working efficiently; as long as employment indexes show idle labor which can be put to productive use; as long as goods are passing to the consumer at a satisfactory rate and overly large inventories are not being accumulated; in short, as long as trade is on the increase, a rise in the price level of commodities, if it occurs, is not only not objectionable, but may be positively beneficial. It is only when the increase in the price level continues with no material increase in the volume of trade that the Federal reserve banks should begin to exercise control. We have said that they should be able to do this under ordinary conditions. In a period such as the two years following 1924, when gold imports continued to exceed exports of gold by substantial amounts, such control of the credit situation might be difficult to exercise should the price level begin to rise out of all proportion to the increase in trade. The imported gold enables the member banks to build up

their reserve balances with the reserve banks without borrowing from the latter institutions. As a matter of fact, the commodity price level has not risen during the period mentioned, but has fallen. Credit has been expanded on the basis of the imported gold, but the expansion has not been along commercial lines. Had credit expansion followed the latter course, however, with business men holding stocks of goods for a rise in prices, over-expansion might have occurred in the commercial and industrial sphere in spite of efforts to avoid it on the part of the Federal reserve banks. But the tremendous inflow of gold which occurred at this time was unusual in nature, and, with normal international monetary conditions again prevailing, there would be little danger of any excessive degree of over-expansion in the industrial or commercial fields without borrowing at the reserve banks, and, when such borrowing takes place, the reserve banks are able to exert considerable influence in the manner explained in the preceding chapter.

Is the control of the price level desirable?—The use of credit control for stabilizing the commodity price level may seem no different at first glance from its use for the purpose of preventing over expansion, and, in fact, there are certain similarities between these two objectives of credit control, but there are also substantial differences. We have already noted in an earlier chapter[1] that extensions of credit by banks for the purpose of aiding in the production and distribution of goods result in an increase in the quantity of bank notes and check currency during the life of the loan which—barring an absolute change in the demand for money—would tend to raise prices somewhat. Also, if the demand for money to hold decreases, there will tend to be an upward influence on prices even if no increase in the amount of bank credit money occurs. It is therefore quite possible, in fact probable, that a period of increasing productivity may

[1] Chapter XII.

be accompanied by some increase in the price level. If this happens, it is not to be deemed particularly undesirable, but rather the contrary, as long as the advance in prices acts as an incentive to a continued increase in production. When the point is reached at which additions to the quantity of loans no longer result in any increase in production, but in a mere speculative holding of goods and competition for existing supplies of labor and materials, the stage of over-expansion has been reached. Up to this point, however, the rise of prices stimulates production, results in a full employment of labor, and brings about some increase in the capital plant of the community.

If the central bank tried to operate so as to maintain a stable price level of commodities at wholesale, it would find it necessary to curtail the amount of credit extended as soon as any rise in the price index used took place. If the price rise resulted from a change in the demand for money to hold, the quantity of deposit currency would have to be decreased to offset the increased demand. If, on the other hand, credit were actually extended to increase production and some slight rise in the level of commodity prices took place, it would be essential for the central bank to bring about some liquidation of loans in order to bring prices back to the old level. Further, if the price index fell below the designated level, the central bank would have to take steps to make money easier, so that the index would be forced up again to the proper height.

Stabilization of the commodity price level undesirable.—Such a policy of rigid price stabilization could scarcely fail to have an undesirable effect. By preventing any rise in the wholesale price level, it would tend to deaden business initiative and prevent highly desirable industrial progress. It is true that, in the past, the progress of industry has been uneven. Plant and equipment have been increased in times of business optimism beyond immediate needs and

periods of decreased business activity have followed such expansion. But each peak progressed a little higher than the preceding one and each succeeding trough of depression showed a higher total of trade than the one before. The long time result was progress toward greater production, although the road traveled was a rough one. The rising commodity prices of the upward swings rose too rapidly and too far to be continued without recession and readjustment. But, had they not risen at all, the progress would have been largely lacking. The aim of the central bank in trying to prevent over-expansion is to permit the continued development of industry without allowing the rise in prices to become "unhealthy." Attempts to prevent any rise in prices from taking place would tend to prevent the continued expansion of trade and industry at anything like the same rate.

On the other hand, efforts to prevent the wholesale commodity price level from falling unduly are more commendable. Such action, if successful, would tend to prevent a downward trend of the wholesale price level over long periods. The depression stage of the cycle is longer in periods during which the trend of prices is downward than when the trend is in the opposite direction, and the shortening of this stage of the cycle which would accompany an elimination of downward wholesale price movements must be deemed desirable. Judged on the grounds of equity rather than of business prosperity, the prevention of a falling commodity price level may or may not be justifiable. If the receding price level results from an inadequate supply of media of exchange, it is perfectly proper to prevent it from falling if possible. If, however, the decrease in the price level is a result of increasing efficiency and lowered costs, the stabilizing procedure is not entirely equitable, for the falling commodity prices permit creditors to share with others in the increased product of the community, while, if

prices were prevented from decreasing, creditors would fail to obtain any of the increase in the community's product.

Judged from all points of view, the policy of stabilization, as applied to the wholesale commodity price level, cannot be recommended as desirable. Changes in the wholesale price level are likely to be a result of dislocation and maladjustment within the price system rather than of any far-reaching change in the purchasing power of money as measured by a comprehensive index of the general price level. If this is the case, it should be clear that a credit policy which aims to prevent over-expansion is superior by far to one which is intended to achieve stabilization of the particular group of prices of commodities at wholesale, for the former tends to remedy the maladjustments as they occur from time to time without deadening initiative and incentive to increased production. Further, the prime function of the banking system is to satisfy the credit needs of industry and commerce in legitimate fashion. The attempt to prevent over-expansion does not interfere with the proper fulfillment of this function, but the use of the banking machinery to insure the stability of the wholesale commodity price level may readily preclude putting that machinery to the use for which it is intended.

In spite of all this, there is a very decided movement on foot, the purpose of which is to amend the Federal Reserve Act in such fashion that the Federal Reserve Board and the reserve banks shall be directed to use their powers to attain a stable commodity price level.[2] It is accordingly advisable to analyze the possibilities of attaining this end by means of credit control should such an amendment to the existing legislation be adopted.

The possibilities of price stabilization through credit control.—The attainment of any rigid stabilization of the

[2] In this connection see the publications of The Stable Money Association.

wholesale commodity price level is of doubtful possibility. The reserve banks do not have any control over the demand for money on the part of the business community, and their control of the supply applies only to the excess funds of the system which may or may not be loaned to member banks. As regards the vast body of deposits which member banks can lend, it is hardly to be supposed that these institutions will refrain from making profitable and perfectly sound loans because the commodity price level happens to be rising slightly. It is true that the reserve banks could sell open market holdings, raise their discount rates, and make borrowing by member banks decidedly unprofitable. This would, of course, prevent a rise in commodity prices from going to extreme heights, but would scarcely prevent a moderate rise in prices from taking place if the attitude of the community and the member banks were such as to bring about a rise in prices. As regards the prevention of a rising price level, then, we may grant that reserve bank control would probably prove partly successful, but only partly so.

On the other hand, the ability of the reserve banks to prevent a fall in the commodity price level is much more questionable. "You can lead a horse to water, but you can't make him drink," is an old adage which applies admirably to this phase of the question. The reserve banks can insure easy money, but they cannot make the business men increase their loans at the bank if they are disinclined to do so. Some students of the subject apparently do not share this opinion. Quoting, for example, from a recent article by Professor Commons:[3]

> The inflation policy of 1924 continued until October, when the holdings of securities reached $580,000,000. The open market committee then began the sale of securities, reducing their holdings $250,000,000 by July, 1925. Gold exports started about the same

[3] *Price Stabilization and the Federal Reserve System*, from *The Annalist*, April 1, 1927. Reprint by the Stable Money Association, p. 6.

time. The member banks immediately began borrowing, and increased their indebtedness to the Reserve banks $750,000,000 from August, 1924, to November, 1925. The commercial rate in New York rose from 3¼ per cent to 4 per cent. The member bank reserves stopped their increase, and the demand deposits declined and then increased. Following these correlated movements, the wholesale price level began its decline from the high point 161.

Thus the Reserve System since the war has conducted three cycles of inflation and deflation—the extreme cycle of 1919–21, before they knew what they were doing; the cycle of 1921–23, while they were learning what they were doing, and the cycle of 1924–27 after they knew what they were doing.

While the facts cited by Professor Commons seem to bear out his conclusions, he fails to explain why the wholesale price index of the Bureau of Labor Statistics continued to fall from 161 in March, 1925, to 144 in June, 1927, in spite of a decidedly easy money policy on the part of the Federal reserve banks during the last year and a half of this period. According to the views of the stable money advocates, such a policy should have resulted in a rise in the level of commodity prices through bringing about an increase in the deposit currency. That such has not been the result has been blamed on the fact that money has not been made easy enough. In this connection Dr. Anderson writes:[4]

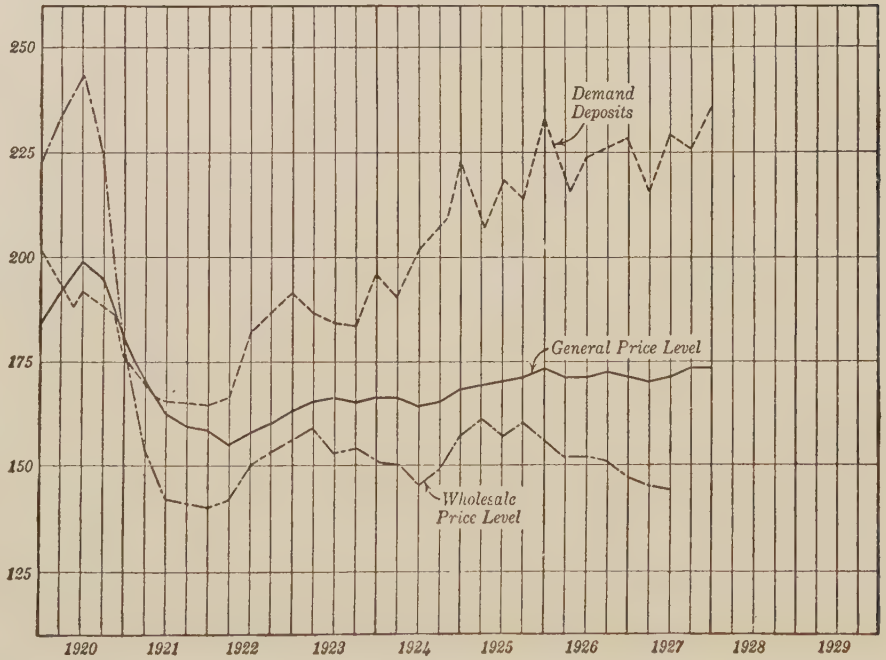
Since commodity prices have fallen in the last two years, the conclusion is drawn that not enough credit has been granted. The foregoing analysis should surely demonstrate the fallacy of this doctrine. It is difficult to see what the Federal Reserve Banks could have done that they have not done to encourage the expansion of bank credit. . . . The total volume of bank deposits has increased enormously and much more rapidly than the physical volume of production and trade. Nonetheless commodity prices have fallen. How much more complete must the demonstration be made that the level of commodity prices is not primarily governed by the volume of credit? How great an expansion of bank credit would the advocates of this policy seriously propose?

[4] *Chase Economic Bulletin*, October 29, 1927, p. 31.

Commodity prices and the general price level.—The truth of the matter is that the reserve banks cannot control the commodity price level to a significant degree. Yet since the banks of the system tend to keep their funds at work, i.e., loaned out or invested, these funds do demand goods or services somewhere in the price system. The result is an increase in the *general* price level, providing deposits increase more rapidly than does the volume of trade. This relationship between demand deposits and the general price level is shown in the chart on page 318. During the period 1922–1927 inclusive, the annual average of demand deposits of member banks increased by about 30 per cent. The annual average of the general price level increased in the same period from 158 to 171, or about 8 per cent. Anderson estimates the increase in volume of trade at around 25 per cent for the same period.[5] This shows rather clearly that there has been a fairly close correlation between the rise in the general price level and the increase in deposit currency during the period in question when the increased volume of business is taken into account. On the other hand, the annual average of wholesale prices in 1927 was slightly lower than in 1922, in spite of the fact that demand deposits increased more rapidly than the needs of trade. The evidence presented seems to indicate that it is possible for the reserve banks to exert some control over the general level of prices, although not a great deal over the level of commodity prices. Control over the general price level, however, will not suit the stable money enthusiasts. Dr. Commons states, for example, that "wages are not prices of commodities—they are the income of participants in production, and are no more entitled to be included in an index for purposes of stabilization than are profits, interest or rent, which are the incomes of other participants," and he would also exclude stock prices on the grounds that they "are forecasts of profits

[5] *Ibid.*, table on p. 20.

CHART IX. Wholesale Commodity Price Level, General Price Level, and Demand Deposits (Member Banks), 1920–1927.



Sources of Data: Demand Deposits. Annual Reports of the Federal Reserve Board, and Federal Reserve Bulletins. General Price Level, *Review of Economic Statistics*, Feb., 1928, p. 49. *Wholesale Price Level*, Federal Reserve Bulletins, Bureau of L. S. Index.

which depend largely upon the movement of wholesale prices." [6] Dr. Commons has a right, of course, to advocate any sort of index he pleases as a criterion for price stabilization, but the facts that wages have been increasing while commodity prices were falling, and that profits, and stock prices, have also been increasing while commodity prices were falling, and other facts of a similar nature, cannot be overlooked when the *possibility* of price stabilization is the question at issue. An easy money policy on the part of the reserve banks may well help bring about price increases in other groups of prices than commodities at wholesale while the latter is not affected by such a policy, and if this turns out to be the case, as it has in the past few years, the reserve banks are helpless to prevent it.

Regional differences in commodity prices.—Before leaving this phase of the subject, one other factor of importance must be pointed out. The elaborate studies of Dr. Mills in connection with price behavior [7] have indicated that there is a considerable regional variation in prices in the United States. He concludes that "there is diversity not only in respect to the absolute prices prevailing at a given time, but there appear to be wide differences in the price behavior of identical commodities in different markets. The materials here presented have been fragmentary, but scattered as the examples have been, they furnish conclusive evidence that the United States cannot be treated as a single homogeneous market in a study of the structure of prices. If the United States is to be treated as a unit in measuring changes in the price level and in dealing with other aspects of the behavior of prices in combination, it can only be done on the basis of adequate regional sampling, with full recognition of existent regional diversities." This difficulty in connection with measuring changes in the wholesale price level,

[6] *Op. cit.*, pp. 7–8.
[7] *The Behavior of Prices.* See especially conclusion on p. 210.

combined with the fact that the control which the reserve banks are able to exert over this price level is fragmentary and unsatisfactory at best, should be sufficient to discourage the advocates of commodity price control by the reserve system.

Conclusion.—The conclusion which naturally follows from the foregoing discussion is that attempts to control the wholesale commodity price level can be successful only in a very limited degree, and that they are not to be considered as desirable on the whole. The use of credit control to prevent over-expansion, on the other hand, is possible within limits and is justifiable in that it serves the best interests of industry and commerce. The present efforts of the Federal Reserve Board and of the reserve banks, in so far as they lie in this direction, are worthy of commendation as pointing toward the best interests of both business and the banking system. Much discretion must always be left in the hands of the member banks. All efforts in the direction of greater care in credit analysis and in the extension of commercial credit make for greater surety that the loans will result in increased production, in a broad sense, and that over-expansion will be avoided. Improvements in this direction and somewhat greater care as to the self-liquidating quality of commercial loans than is now frequently exhibited are highly to be desired.

QUESTIONS FOR STUDY

1. In what way does a central bank operate to maintain a sound banking situation within the country?
2. Give examples of the way in which a central bank acts to prevent unusual or extreme disturbances in the money market.
3. How may the central bank maintain confidence in the banking system in time of emergency? What undesirable consequences may thereby be avoided?
4. What is meant by over-expansion? Explain fully. How does a central bank act to prevent over-expansion from taking place?
5. What methods would be used by a central bank if its object

were the control (stabilization) of the price level? What sort of price level is usually meant by the advocates of this form of credit control?

6. What can you say as to the desirability and possibility of maintaining a sound banking structure through central bank control of credit?

7. Is the prevention of over-expansion a desirable objective of credit control? Why or why not?

8. To what extent is it possible for a central bank to prevent over-expansion through the control of credit?

9. How can a central bank determine whether or not over-expansion has occurred?

10. How does control of the price level differ from the prevention of over-expansion as an object of credit control?

11. Discuss the desirability of attempts to stabilize the wholesale commodity price level through the control of credit.

12. Give evidence to show that any substantial control over the wholesale commodity price level is impossible.

13. Compare the feasibility of controlling the *general* price level with that of maintaining a stable level of commodity prices at wholesale.

14. What have regional differences in commodity prices to do with the feasibility of central bank control of the wholesale price level in a country like the United States?

This author is unfair, and not accurate.

CHAPTER XVII

FOREIGN EXCHANGE

Introduction.—Up to this point in the book the material presented has had to do with the application of monetary principles within a single country. Before we can arrive at a full understanding of these principles, however, it will be necessary to apply them to the monetary relationships which exist between different countries. Since this is the case, this and the two following chapters will be devoted to a study of the various monetary aspects of foreign exchange. In the present chapter we shall consider briefly the mechanics of foreign payments and the forces which determine the rates of exchange which exist between different countries. The following chapter will then be devoted to a consideration of the nature and reasons for movements of gold between countries, while the final chapter on the subject will attempt to show the applicability of domestic monetary principles and practices to international exchange.

The mechanics of foreign payments.—The technicalities which beset the handling of actual transactions in foreign exchange are a part of the subject-matter of banking and, as such, they will receive scant treatment in the present study. It will add materially to the clarity of the discussion of the monetary aspects of foreign exchange, however, if the process by which foreign payments are effected is sketched in more or less general fashion, and we shall therefore begin our discussion of the subject with such a description.

The arrangements by which foreign payments are effected are, broadly speaking, merely an extension of those by means of which domestic payments are cared for. The problem is complicated chiefly by the fact that the majority of foreign nations have monetary units which are different from our own, so that it becomes necessary to translate dollars into terms of pounds, francs, marks, lira, etc., or vice versa, in effecting such payments as we may make to foreigners or as they may make to us. Aside from this, there is nothing strange or unusual about foreign exchange. With a few abnormal exceptions about which there is no need to worry, the payments are from one individual to another as in domestic trade. *A,* a citizen of the United States, buys a bill of goods from *B,* who is a resident of England, and these goods must be paid for. An Englishman, *C,* buys some railroad securities through a broker on the New York Stock Exchange, and they must be paid for. An American bootlegger smuggles some champagne, bought in France, into this country, and it must be paid for. A New York exporting house ships goods abroad in vessels owned by Scandinavians, and the services furnished by these foreign shippers must be paid for. How, then, are all these various payments to be effected?

It would be possible, of course, to ship gold, which has such widespread use as a standard of value that it is acceptable practically everywhere, in payment for all goods or services purchased, but it is obvious that this would be a clumsy and expensive method. Shipments of gold have to be carefully packed and insured, and any such plan as that suggested would result in many comparatively small gold shipments bound for creditors in America passing in mid-ocean a similar aggregate of shipments from American debtors to foreign creditors. Such a situation would be akin to that of a group of banks in a given city if no clearing facilities were available. Every bank would present all the

checks which it held against every other bank for payment, which would be made with reserve funds. Messengers from Bank *A* taking lawful money to Bank *B* might pass messengers from Bank *B* with lawful money for Bank *A*, etc. In the case of nearly every group of city banks, the obvious remedy for such a situation—the cancellation of conflicting claims through a clearing process—has been adopted. We shall see that this is substantially what takes place with respect to international payments, although the differences in monetary units and certain dissimilarities in the process of effecting such a cancellation tends to obscure the fundamental similarity of the two instances.

United States and England used to illustrate process.—Since the general nature of the operations performed is substantially the same in all cases, the discussion will be confined for the present to two countries, say the United States and England. The foreign exchange bankers (usually merely a department of a big commercial bank) in the United States, knowing that there will be a constant stream of demands for English money by Americans who have debts to pay in England, have opened deposit accounts with various English banks. These accounts are called bankers' balances and the banks with which they are kept are known as correspondent banks, but this does not alter the fact that they are simply deposits, payable to the depositor (the American bank) upon demand, and against these deposits the American banks can write checks drawn in favor of some third party, just as an individual depositor in a local bank can write checks against his bank in favor of his creditors. Under these circumstances, when an American buyer of English goods wishes to make payment therefor, he simply goes to the foreign exchange department of his bank and buys a check (or draft, as it is called) drawn by his bank against its correspondent bank in London, and sends it to his

English creditor who can then either cash it or deposit it for credit to his own account.

Methods of maintaining English deposits.—This is clear enough, but how, it may be asked, does the American banker keep his English deposit account replenished, so that the checks which he draws will be certain to be honored by the English banker when presented to him for payment? The American banker might send over gold for this purpose, but if he had no other method of building up his account, there would be no economy in the use of gold over the first method suggested, except that which would attach to its shipment in larger lots. As a matter of fact, no such scheme is used. Gold is shipped only in comparatively small quantities now and then and the banker builds up his foreign account largely by other methods.

Chief among the methods used is *the purchase of claims against Englishmen* from Americans who have sold goods, securities, or services, to buyers in England. Such claims, having been purchased by the American banker, are sent over by mail to the latter's correspondent bank in London. Upon receipt of these claims, the correspondent bank proceeds to collect them from the English buyers and to deposit the funds so collected to the credit of the American banker. Naturally, the foreign exchange banker will not give so much to the American holders of claims of this sort as he expects to get when he sells his own drafts against his English account. Even if these claims are payable immediately upon presentation in England, this would still be the case, for only by charging slightly more for his own drafts than he pays for the claims he buys can the foreign exchange banker make any profit from carrying on his business. When the claims purchased are not payable upon presentation in the foreign country, but only after a definite period of time has elapsed, still less will be given for them. The American

banker, in buying claims against Englishmen and sending them over to England for collection and credit to his deposit account there, wants immediate credit and, if the claims he sends over are not collectible for two or three months or longer, he can get immediate credit only by having his London correspondent banker sell these claims at a discount to someone who is willing to wait until they come due. Fortunately, there is a wide and steady market in London, where such claims can be disposed of at will, but the purchasers of these claims will not pay the full face amount for them, since they have to wait for a time before the claims can be collected. The amount that can be obtained from selling a claim in the market (called the proceeds) will be the face amount of the claim less interest on that amount for the time that must still elapse before the funds can actually be collected. The American banker gets immediate credit to his English deposit account for the proceeds of such time claims, but not for their face amount, and he will give less in the United States for time claims on that account than he will for claims which are payable at sight, i.e., immediately upon presentation. The longer the time which the claim has to run before maturity, the less will be the proceeds, and, consequently, the smaller the price in dollars which the American banker will give for the claim. Thus a 60-day claim will command a higher price than one maturing in 90 days, and a 90-day claim a higher price than one which has six months to run.

Other methods of building up foreign accounts.—The purchase of claims against Englishmen is, as has been stated, the most important way by which American bankers build up their deposit accounts in England. The same method is used also to build up accounts in other countries with which the people of the United States have trade and financial relations. There are other methods which may be used to accomplish the same end. The American banker may, for

instance, *borrow from his foreign correspondent* and have the proceeds of the loan credited to his account. This procedure, however, furnishes only temporary relief, as the loan will have to be repaid in the not far distant future, but if the banker finds claims against foreign buyers scarce as compared with the demands of Americans for his own checks against foreign banks, he may build up his foreign accounts temporarily by borrowing in anticipation of a reversal of these conditions in the near future. If any one of his foreign accounts, say that in Paris, is larger than necessary, while that in London is too small, he may *transfer* a part of his deposit in Paris to his banker in London in exchange for a credit to his English account, thus leveling out the inequalities between his deposits in different countries. Finally, he may *ship gold* to build up any one, or all, of his foreign accounts. The methods just mentioned are subordinate in importance to the purchase of claims and act as a supplement to the latter. They, however, like the purchase of claims, have one object in view—the building up the banker's foreign deposits, or the increase in the supply of his stock in trade which is *funds abroad.*

Rates of Exchange

Definition of rate of exchange.—We are now in a position to comprehend more clearly than before the meaning of the term *rate of exchange.* The rate of exchange on any given country has been defined as "the price in dollars and cents at which the foreign exchange banker will sell . . . drafts on the balance he is carrying (in that country)."[1] With reference to a specific country, as England, the rate of exchange as quoted in New York is the price in dollars and cents which the New York banker charges for the right to claim a pound sterling in England. In other words, the

[1] Escher, *Foreign Exchange Explained,* p. 4.

banker sells a right to funds abroad (in England, in this case) and charges a certain price for that right in dollars and cents per unit of English money. Just how is this price determined?

The rate of exchange determined by the demand for and supply of funds abroad.—In the short run the rate of exchange is determined by the relation between the demand for and the supply of funds abroad. If the demand for funds abroad on the part of Americans who have debts to pay in foreign countries is in excess of the supply of such funds at the existing rate of exchange, the rate will have to rise to a point which will equalize these two forces. On the other hand, if the supply of funds abroad is in excess of the demand for them at a given rate, the rate will fall until the demand and supply are equalized. More fundamental, however, are the factors which go to determine the forces of supply and demand, and of these one of the most important is the relative purchasing power of the monetary units of any two countries. The reason that people want the money of a foreign country is because they have payments to make there, and if a unit of a certain foreign money will buy, on the average, some five times as many goods and services as a unit of domestic money, people will be willing to give, on the average, five units of domestic money for one unit of foreign. For purposes of illustration, let us assume that the United States and England trade only with each other and that neither country permits the export of gold. Assume further that there is absolute freedom of trade between the two countries with no hindrances in the way of tariffs, embargos, and the like, with the exception of the embargo on gold. Now let us suppose that trade between the two nations is in a state of equilibrium and that the English pound will purchase 4.87 times as much, on the average, in England as the dollar will in the United States. The rate of exchange which would tend to exist in New York on

London would be $4.87; i.e., $4.87 would tend to be the price charged by the New York bankers for the right to claim one pound in London. This may be termed the par of exchange between New York and London, or it may be designated the normal rate of exchange, since it is the rate which is always tending to prevail in view of the existing conditions. Any deviation of the actual rate from par, or from the normal rate, would set at work forces which would tend to bring the actual rate back to normal.

Automatic forces tend to prevent wide deviations of the rate from par.—Under the conditions assumed, it would be found that certain goods could be produced more cheaply in England than in the United States and Americans would buy those goods from England. Other goods could be produced more cheaply in the United States, and Englishmen would purchase those goods in this country. Trade would take place between the two countries with a normal rate of exchange of $4.87 to one pound. The actual day-to-day rate, while seldom or never coinciding with the normal rate, cannot, it has been said, depart far from it. Suppose the actual rate to be $4.92 per pound instead of $4.87. Such a rate would tend to make the importation of goods from England less profitable than the normal rate because £1,000 worth of English goods would cost the American importer $4,920, when he came to buy a claim on an English bank to pay for them, instead of $4,870. Conversely, exports to England would be somewhat more profitable to English importers because they could buy claims to dollars to pay for the goods for less, in pounds, than if a rate of $4.87 to the pound existed. Looked at from the point of view of the United States, imports would tend to decrease and exports to increase. The result would be a decrease in the demand for claims on England by American importers and an increase in the supply of such claims offered to the foreign exchange bankers by American exporters. In other words, the for-

eign exchange bankers' stock in trade, funds in England, would become larger, while the demand for this stock at the higher rate would decrease. Supply would exceed demand at $4.92 and the competition of the foreign exchange bankers would drive the price of claims to funds in England to a lower level. A fall in the rate of exchange below $4.87, on the other hand, would have just the opposite effect and the rate would tend to rise.

Effect of changes in relative purchasing power.—It should now be clear that the forces governing the short-run rate of exchange are those of the demand for and supply of funds abroad, and that, as long as the monetary units of the two countries undergo no marked change in purchasing power, the action of these forces will prevent the actual rate from diverging very far from the par or normal rate which represents relative purchasing power. It is quite possible, however, that some change may occur in the purchasing power of one or the other of these units of money which will destroy the relationship of 4.87 to 1 in their purchasing powers. Let us suppose, for example, that the United States greatly increases the quantity of money issued and that prices rise so that they are double their former level, while the price level in England remains unchanged. Under such circumstances, the old price relationships that had been worked out would be entirely upset. Practically nothing could be profitably purchased by Englishmen in the United States because of the tremendous increase in prices in the latter country, while the profit to be derived by importing goods into the United States from England would be tremendous. Trade between the two countries—if continued—would be all in one direction, from England to the United States. The funds which American foreign exchange bankers held in England would become a fixed supply good except for such amounts as they might be able to borrow for the time being from their English correspondents, while the demand

for funds in England on the part of American importers would greatly increase. The bidding of the latter for the available supply of funds in England would drive the price of these funds sharply upward in terms of dollars and this rise in the rate of exchange on England would continue until the *exceptional* profit to be derived from importing operations had disappeared. At this time, another equilibrium would be established with the normal rate of exchange in close proximity to $9.74 per pound. After this equilibrium had been reached, it would again be possible for the actual rate of exchange to fluctuate somewhat above and below the new par, with the forces of the demand for and the supply of funds in England operating to bring it back to this point every time that it deviated very far therefrom.

In the illustration chosen it was assumed that no gold shipments took place and that a sudden doubling of the price level occurred in one of the countries. The first assumption is not in accord with normal trade and financial relationships between countries, but such conditions did exist for a number of years during and after the Great War in several of the participating countries. As to the second assumption, that the price level suddenly doubled in one country, this could scarcely take place in actual practice, but the assumed conditions have been exaggerated for the purpose of throwing into sharp relief the main point, namely, that *the normal rate of exchange between any two countries tends to settle at a point which expresses the relative purchasing power of the money of those countries.* This is the purchasing power parity theory of exchange rates, as first elaborated by the distinguished Swedish economist Cassel.[2] The theory is essentially sound as a theory of normal exchange rates, but, as set forth above, is subject to several limitations to which attention must now be directed.

[2] In *Money and Foreign Exchange After 1914.*

Limitations on the theory of purchasing power parity.— The purchasing power parity theory, if it is to be considered sound, must postulate an *equal rise in the prices of all goods* when the price level of any country engaged in foreign trade changes. If the prices of goods rise in varying degrees, the old equilibrium will be upset in the trade relations between the two countries, and a doubling of the price level of one of the countries may not result in an exactly proportional alteration in the normal rate of exchange between the two. As a theory of normal exchange rates, no criticism can be directed against it on this score. A rise in prices brought about by a purely monetary change cannot permanently affect the relative productivity of the two nations (unless one of them had too little money, from the standpoint of productive efficiency, to begin with), and it is on this productivity that their trade relations are based. But as a method of explaining the varying exchange rates which resulted from the fiat money orgy of the Great War, it is not highly satisfactory. The old price relationships were entirely destroyed in many cases by the increase in price levels, and the assumption that all prices rise in equal degree during such a period is so far from the facts that the working out of the theory with a high degree of precision is practically out of the question.

Another qualification which must be taken into account results from the various *tariff barriers and embargos* which exist in practice and which interfere with the freedom of trade assumed by the theory. Any marked interference with imports because of a high protective tariff in one country can have the effect only of limiting the purchases of that country in other countries and thus of interfering with the natural equilibrium established by the relative price levels of the two countries. Embargos also have the effect of limiting trade and causing the rate of exchange to deviate from

the normal as represented by the relative purchasing powers of the money units of the two countries.

Purchasing power in a limited sense.—It should be noted, also, that purchasing power in a very general sense cannot be meant if the theory is to be considered sound, even when the other postulated conditions are fulfilled. There are many goods and services which do not enter into foreign trade at all, and about the prices of which the people of foreign countries have no concern. Bulky materials which are perishable or which have such low value that they cannot stand shipping charges, wages, salaries, professional fees, land, etc., are important items in determining the real purchasing power of a country's money, yet changes in the prices of these goods and services would scarcely affect the valuation which another people would put upon the money of the country in which these prices had changed. In a sense, this comes under the head of the assumption that all prices must rise together in the same proportion. Cassel, however, evidently had no such comprehensive notion of purchasing power when he propounded his theory, and the fact that any great short-run change in the general price level does result in a marked change in the relationships which exist between the prices of goods, services, securities, etc., is a marked drawback to the satisfactory application of the theory when *general* price levels are used. There is a sort of natural limitation on the types of goods and services which can be traded in between countries which has a similar effect, differing only in degree, to those restrictions imposed by the erection of tariff barriers and embargos. It is granted that tariffs and embargos interfere with the working out of the theory in practice. It must be likewise admitted that these natural limitations interfere with its practical application if the term purchasing power is used in any general sense. If purchasing power, on the other

hand, is deemed to apply only to those goods and services which are, or may be, traded in between countries, the theory attains greater validity.

Purchasing Power Parity and the Gold Standard

The theory in relation to gold.—In the discussion of the theory of purchasing power parity thus far the assumption has been that gold not only is not used in payments between countries, but that it does not enter into the determination of the exchange rate in any way. When the majority of the world's trading countries are on the gold standard, as is normally the case, this is, of course, out of line with the facts, but some writers have considered the departure from the gold standard by a large number of countries during the Great War a sufficient justification for assuming that gold ceased to enter into the determination of exchange rates. The validity of such an assumption is questionable. The writer of a recent textbook makes the following statement:[3] "When the German mark was dropping rapidly in the summer of 1923, the shops in Berlin were constantly adjusting their prices to the new quotations. Goods which sold for 20 marks when the dollar was quoted at 1,000,000 marks were marked up to 40 marks when the dollar was quoted at 2,000,000 marks. Dollar foreign exchange rates determined German internal prices to a large extent during this period. This was also the case since the war in Austria, Poland, and Russia."

This statement is in accord with the view hitherto expressed in this volume that prices continue to be measured in gold even when a country is on an irredeemable paper basis. That this was the case in the United States during the Civil War has been fairly conclusively demonstrated by Mitchell in his *A History of the Greenbacks,* previously

[3] Kilborne, *Principles of Money and Banking,* p. 278.

cited. During the Great War there were no free gold markets such as existed in New York during the greenback period and it is therefore more difficult to show the relationship between gold and price levels in countries on an irredeemable basis. After the Great War, however, the United States was the most important country of the world on a gold standard, and the fact that a number of European countries based their internal prices largely on the dollar rate of exchange indicates an effort to measure the values of their goods in terms of gold. The well-nigh universal resort to an irredeemable paper basis by the belligerents in the Great War led many astute theorists to believe that the opportunity to study monetary conditions as entirely divorced from gold was at hand and that such matters could be studied in a real and simplified light. Few beliefs have been less warranted. The value of money has not been divorced from the value of gold. Rather, the relations between the value of gold and that of money have been unduly complicated by the situation which has existed in past years. The time has not yet arrived when people are willing to accept scraps of paper in place of gold, dollar for dollar, unless they can redeem them in gold or feel certain that redemption will be possible in the not too far distant future.

Validity of theory not destroyed.—This, however, does not destroy the validity of the purchasing power parity theory. It still holds as the fundamental explanation of exchange rates when both of two countries are on the gold standard, for the value of gold, which we have taken to be its general purchasing power, cannot vary greatly or for long between two localities without resulting in a flow of gold from the point where it is less valuable (has a smaller purchasing power) to the place where its value (purchasing power) is greater. Some variation there may be as a result of transportation costs, but the difference in value will not be greater than the amount necessary to move the gold from

one place to the other. The movement of gold will continue until its value (purchasing power) is equalized in the two countries. Even this statement, obvious as it may seem, cannot be made without some qualification. The prices of materials and services which are of such a nature that they cannot or will not be transported to another country must logically enter into the determination of the value of the standard in any given country. These prices, if they change, may not affect other prices in exactly the same degree, and the result will be a change in the general price level of the country in question without a corresponding change in the price level of the goods and services which enter into foreign trade. Yet it will be the change in the price level of goods, and especially of those goods which enter into foreign trade, which will determine whether or not gold will be shipped out of the country.

This qualification is not so important as it might seem at first glance from the point of view of a theory of normal exchange rates. Under any level of prices, the prices of different goods and services are always tending toward the prices which represent the social significances of those goods and services as measured by their contributions to the satisfaction of human economic wants. A mere monetary change, *per se,* cannot change these fundamental relationships. It may throw them out of adjustment for a time, and it may even affect the forces which determine these social significances, but, barring the latter result, the prices of all goods and services will always be *tending* toward the old relationships which measure social significance and cost. It is justifiable, then, to say that the normal value of gold money in any one country, as represented by general purchasing power, cannot diverge by more than the cost of transportation (and possible loss of interest) from its value in any other country with which extended trade relations are maintained.

From the short-run standpoint, however, it is necessary to take account of such maladjustments between price groups as those we have mentioned, and to consider the value of gold money as determined by its purchasing power over those goods which enter into foreign trade and such services and securities as are dealt in between countries as far as international gold movements are concerned. Since it is the short-run forces which actually bring about the movement of gold from one country to another, it is naturally important that we consider them in connection with the subject of gold movements, a subject which will be discussed at some length in the following chapter.

QUESTIONS FOR STUDY

1. How does the necessity of making foreign payments arise?
2. In what ways may the American foreign exchange banker build up his foreign deposits? Which of these is the most important?
3. Define "rate of exchange."
4. What determines the rate of exchange on a foreign country in the short run? Explain.
5. What is the par of exchange between two countries neither of which is on the gold (or other metallic) standard?
6. Show how the working of automatic forces will prevent the rate of exchange from diverging very far from the par of exchange.
7. What reactions would take place if the price level of one of the countries were suddenly doubled? What would the final result tend to be? Why?
8. State the theory of purchasing power parity.
9. What are the more important limitations of the theory?
10. Do you think that the value of gold had anything to do with the determination of the internal price levels of the European countries which were on a paper basis after the War? If so, how would this affect the soundness of the purchasing power parity theory?
11. Is the purchasing power parity theory of exchange rates valid when applied to countries on the gold standard?
12. "The purchasing power parity theory is a theory of normal exchange rates." Explain and defend.

BIBLIOGRAPHICAL NOTE

Because of the fact that this and the two following chapters are all concerned with various aspects of foreign exchange, the present

note will suffice for the three chapters. Extended treatments of all phases of foreign exchange will be found in I. B. Cross, *Domestic and Foreign Exchange* (New York, 1923), and A. C. Whitaker, *Foreign Exchange* (New York and London, 1921). Somewhat briefer, but nevertheless comprehensive, are E. S. Furniss, *Foreign Exchange* (Boston, 1922), and Franklin Escher, *Foreign Exchange Explained* (New York, 1920). Still briefer, but very readable, is Hartley Withers, *Money Changing* (London, 1918). The problems arising out of foreign exchange, the theory of exchange rates, and incidental material are discussed at greater or less length in practically every standard text in money and banking. R. D. Kilborne, *Principles of Money and Banking* (Chicago, 1927), devotes more space to the subject than most such textbooks. The material in R. G. Rodkey, *The Banking Process* (New York, 1928), although not extended, is excellent.

A number of books which bear on certain phases of the subject should be mentioned. Gustav Cassel, *Money and Foreign Exchange After 1914* (New York, 1923), contains a detailed exposition of the purchasing power parity theory of exchange rates. D. H. Robertson, *Money,* contains a chapter on the foreign exchanges which is devoted mainly to a discussion of exchange rates in a delightful style. Walter Bagehot, *Lombard Street* (London, 1873, Fourteenth Edition, 1924, Fifth Reprint), is a classic and contains a clear account of the relation of the Bank of England to the bill market, as well as other interesting material bearing on gold movements and foreign exchange. J. M. Keynes, *Indian Currency and Finance* (London, 1924), presents an excellent description of the operation of the gold exchange standard. F. M. Taylor, *Some Chapters on Money,* has a precise and careful discussion of the movements and distribution of gold, which has been followed rather closely in parts by the present writer.

Much valuable descriptive and statistical material on the foreign exchange situation in the various European countries during and after the Great War is contained in J. P. Young's report to the Commission of Gold and Silver Inquiry, *European Currency and Finance* (Washington, 1925), Volumes I and II. H. N. Lawrie's report to the same commission, *Foreign Currency and Exchange Investigation, Foreign Exchange Quotations and Curves* (Washington, 1924), embodies complete statistical and graphical material on foreign exchange rates. Recent Federal reserve policy with regard to gold movements is described in the *Annual Report of the Federal Reserve Board,* 1927, and in current issues of the *Federal Reserve Bulletin.*

CHAPTER XVIII

THE MOVEMENTS AND DISTRIBUTION OF GOLD

Introduction.—A study of the forces governing the distribution and movements of gold between countries may best be introduced by a description of the immediate processes by which the shipment of gold from one country to another is effected. For this purpose we shall return to the earlier assumption of trade confined to the United States and England, but shall bring our hypothesis more nearly into accord with the facts by assuming both countries to be on the gold standard. The actual par of exchange in New York on London is $4.8665. This figure is arrived at by dividing the number of grains of pure gold in the English pound (113.0015) by the number of grains of pure gold in the United States dollar (23.22). The former equals 4.8665 plus times the latter and hence the equivalent of the pound in dollars is $4.8665. This is what may be termed the gold or mint par of exchange. For countries on the gold standard, the mint par coincides with the purchasing power par, and is hence to be considered as the normal rate of exchange. With this introductory statement of the relations between the pound and the dollar we shall proceed to examine some of the technicalities connected with the shipment of gold from the United States to England or vice versa.

The technique of gold shipments.—The actual day-to-day rate of exchange between the United States and England may deviate from par by the cost of shipping gold from one

country to the other. The shipping of gold is undertaken by bankers in practically every case, and occurs when the bankers find it profitable to make such shipments. Suppose, for example, that American foreign exchange bankers find that their balances in English correspondent banks are becoming low, so that they cannot afford to sell drafts against these deposit accounts except at a figure higher than $4.87.[1] They naturally want to replenish their accounts in London and will bid for claims against Englishmen, thus driving up the price in dollars and cents which they will pay for a claim to a pound sterling in London. The scarcity of such claims, coupled with an active demand for drafts with which to pay debts in England, may drive the rate up to, say, $4.89, but it will not go much higher than this, since the shipment of gold will furnish a more profitable method by which the bankers may build up their English accounts.

The cost of packing, shipping, and insuring gold varies somewhat from time to time and even from shipper to shipper, so that it is not possible to designate a specific rate of exchange at which gold will be exported. The exact cost is immaterial to the illustration of the point at hand, and we have assumed a cost of nearly 2½¢ per pound sterling in the preceding example, which is fairly close to the actual cost in many cases. If the banker can obtain the amount of gold in a pound (113.0015 grains) for $4.8665 and has to pay 2.3 plus cents to cover all the costs involved in shipping the gold to London and having it deposited to his credit, it will pay him to follow this method rather than to buy additional claims on Englishmen from exporters at a price of more than $4.89 per pound sterling by the time he has sent them over to London, had them discounted in the market, and had the proceeds credited to his account.

If, on the other hand, the rate of exchange goes down to approximately $4.84, the importation of gold will prove

[1] Using $4.87 to indicate the par of exchange, although it is really a fraction of a cent lower than this as noted above.

profitable. The banker wishes to build up his reserves in this country in such an instance. The dealings of the foreign exchange banker consist of exchanging funds in this country for funds abroad and vice versa. If claims to funds in England are plentiful, while the demands of importers and other debtors for funds in England are slack, the banker will find himself in a position where his funds at home and abroad are out of balance. He will find that he has too large a proportion of his funds in England and too small a proportion at home. The competition of bankers to dispose of their English deposits and the competition of exporters to sell their claims to payment in England will drive the rate of exchange down. The banker has two methods of restoring the balance between his domestic and foreign funds. Either he may sell more drafts on his English account to those who have debts to pay in England, or he may draw down his English deposits to obtain gold for importation.

There are a number of factors to be considered in calculating the costs of importing gold, as in the calculation of export costs, and again it is impossible to designate a specific gold import point or rate. We have assumed a cost of just over 2½ cents per pound sterling, and must show that importation of gold will prove profitable if the rate falls to $4.84 when the cost of transportation is that which we have assumed. When the imported gold arrives, the banker will have 113.0015 grains of gold for each pound sterling imported, which will be worth $4.8665 in domestic money. From this must be subtracted the expense of bringing the gold over which we have assumed to be just over 2½ cents per pound. This leaves the banker approximately $4.84 per pound sterling imported. It is obvious, therefore, that it would be more profitable to import gold under the conditions assumed than to sell drafts against an English account at less than $4.84 per pound.

Other factors involved in particular shipments.—The foregoing description covers the technicalities connected with gold shipments only in barest outline. There are a number of other factors involved at times in particular shipments. The flow of gold into the United States may take place at the instigation of English bankers instead of those in America, and, if it does, the rate at which such shipments are made will be slightly higher than when American bankers take the initiative. There may be a loss of interest if the gold cannot be shipped at once due to lack of immediate passage space, and this must be figured in the cost. Gold may be imported at times when such an operation is not in itself profitable in order to further certain ulterior ends. There are numerous complications and qualifications in connection with many of the specific shipments which take place. Nevertheless, the fact remains that, by and large, gold shipments take place because bankers find such shipments profitable and that for the general reasons indicated in the preceding paragraphs.[2]

Principles Governing Gold Movements

Disproportionate changes in price levels.—These gold movements, resulting as they do from the self-interest of the foreign exchange bankers, are determined by the relation between the demand for and the supply of funds abroad, and we have seen that the most important forces affecting the supply of and demand for foreign funds are those connected with the exportation and importation of goods.[3] It thus happens that changes in prices play an important part in the determination of gold movements, for if prices rise

[2] An excellent and highly detailed study of the forces affecting individual gold shipments is to be found in Cross, *Domestic and Foreign Exchange*, Chapter XI.

[3] Goods must here be understood to include all goods and services which enter into foreign trade.

in one country while remaining practically unchanged in other countries, exports from that country will tend to fall off—diminishing the supply of funds abroad—and imports will tend to increase—increasing the demand for funds abroad. This will cause the rates of exchange on foreign countries to rise to points sufficiently high to make the export of gold profitable, whereupon such export will ordinarily take place. This may be summed up in the form of a principle to the effect that *gold tends to flow out of a country where the price level of foreign commodities has risen out of proportion to the rise in the corresponding price levels of other countries with which it has trade relations.*

Gold outflow will not continue indefinitely.—There is no need to fear, however, that such an outflow of gold will continue indefinitely, for the loss of gold itself sets up conditions which will automatically remedy the situation. It has already been shown that a rising rate of exchange brings into action forces which tend to bring it back to par by increasing the profitability of exporting goods and decreasing the profitability of importing goods. But if the rate rises to the point where gold exports become profitable and actually take place, still other forces are set to work which will stop the outflow of gold sooner or later. (1) The shipments of gold out of the country will result in a decrease in bank reserves and a withdrawal of funds from the call loan market, or other markets for short-time loans, where the surplus funds of the banks are ordinarily invested. (2) This will cause a higher rate of discount on the market for call loans and will tend to decrease the speculative activity of dealers on the stock exchange and on the organized markets for cotton, wheat, and other staple products. (3) As a result the prices of securities and staples will tend to fall, and the foreign purchase of these investments and goods will tend to increase. (4) This will bring about an increase in the supply of claims to funds abroad which are offered to for-

eign exchange bankers, and (5) the rate of exchange will tend to fall below the point which makes the exportation of gold profitable. If the foreign purchases at the lower prices for securities and staples should increase sufficiently, the rate of exchange might go down to a point which would result in the importation of gold. This is not likely to occur, it is true, but that the outward flow of gold will be stopped is fairly certain.

To assume an extreme case, however, let us suppose that the above forces are not sufficient to bring about a cessation of the gold outflow and that the yellow metal continues to leave the country. Eventually, bank reserves will be depleted to the point where some deflation of bank credit will be necessary. When this time arrives, there will result a general fall of prices which will continue until it is no longer profitable to export gold and the outflow will cease. A steady drain of such proportions is not at all likely to occur in practice, as the other forces which have been mentioned would stop the outflow, in all probability, before it had attained such magnitude, but it has been discussed for the purpose of showing that *there is no danger of a continual loss of gold from a country of such duration as to result in a complete draining away of its monetary stock.*[4]

World gold stock distributes itself according to need.—As following from the preceding observations, a generalization may be formulated to the effect that *the monetary stock of gold tends to distribute itself among the gold standard countries in proportion to the need for it.* This is, of course, a

[4] It is not necessary to go through the reactions which would prevent a country from importing gold continuously until its monetary gold stock was entirely out of proportion to its needs. In general, they would be just the opposite of those which prevent an undue export of gold. However, the fact that the business community may refuse to make use of the imported gold for spending purposes (or as a basis for credit expansion) may prevent prices from rising as they otherwise would, and so allow more gold to be imported at times than is at all necessary or desirable.

long-run principle. If the economic productivity of a given country is on the wane and the amount of monetary gold remains unchanged, the price level will rise and gold will flow out of the country, but, under the conditions mentioned, the old stock of gold is larger than necessary to carry on the diminished volume of trade. On the other hand, if the productivity of a country is rapidly increasing without some increase in the monetary gold of the country, prices will tend to fall and additional gold will be attracted in that direction. Methods of economizing in the use of gold, such as the development of the check system, etc., may prevent gold movements into the country which would otherwise take place, but, after all, the country in which such economies have occurred has less need for gold than other countries which have not adopted the more efficient methods of exchange, so that the fact that gold does not move into such a country as rapidly as might be expected is not contradictory to the statement of this principle.

Net gold movements referred to.—It should be understood that the term *gold movements,* as it has been used in the preceding discussion, refers to net movements of the metal. If the United States imports $21,000,000 in gold in a certain month from some countries and exports $10,000,000 in gold to other countries during the same month, the net gold movement is $11,000,000 into the United States for the month in question. In considering any long-time distribution of monetary gold among the countries of the world, a year is the shortest period which should be used in the calculation of net gold movements for the reason that many imports and exports of gold are seasonal in nature and occur at different times of the year. Thus, prior to the Great War, there was a customary excess of goods exports to European countries in the fall of the year which ordinarily resulted in a net inflow of gold into the United States during those months, while, in the spring of the year, imports of goods tended

to be in excess of exports and gold frequently left the country in significant amounts. In so far as the spring outflow of gold was offset by the autumn inflow, there was no permanent effect on the stock of gold of the United States. Such movements of gold were important in many respects, but not in effecting a permanent redistribution of the world's monetary gold stock, for they took place when the relative price levels of the United States and other countries had remained practically unchanged; they were purely seasonal movements; and they offset each other almost entirely.

Other tendencies.—One or two other tendencies should be mentioned before this survey of gold movements is brought to a close. *If any given country issues any considerable quantity of legal tender credit money, gold tends to be displaced and leave the country.* This occurs because of the inelasticity of government legal tender credit money. If the volume of trade decreases, such issues of paper or credit money fail to contract, since there is no particular motive for redeeming it. The quantity of money then becomes excessive and gold is shipped out of the country, as it is the only acceptable means of international payment, while the legal tender credit money, which cannot be used to pay foreign balances, remains in the domestic monetary stock and takes the place of the exported gold. This is to be distinguished from an increase in the quantity of credit money through the development of a check currency. To a certain extent, the latter may be said to prevent gold from flowing into the country to the degree that it otherwise would, and it does this by keeping the price level from falling, but, as it contracts somewhat in times of decreased business activity, it is seldom responsible for a displacement of gold such as occurs when a redundancy of government legal tender credit money is brought into existence.

Barring unduly great and lasting changes in the price level of a given country as compared with those of other

nations, *the exports and imports of gold over any long period of time tend to counterbalance each other,* so that there is no material net change in its gold supply. Exceptions must be made, however, of countries which produce no gold within their limits and those which produce an amount of gold greatly in excess of their own monetary needs. There will tend to be a more or less continuous net export of gold from the latter countries and a net import of gold into the countries of the former group. In the large gold-producing countries, prices will tend to be high and the rate of exchange will tend to be at the gold export point a good deal of the time. Conversely, in the countries which produce no gold, prices will tend to be lower and these countries will therefore tend to import more gold than they export in the long run. This is really a part of the general principle that the gold stock tends to be distributed in accordance with the needs of the different gold standard countries, and need not detain us further.

The Artificial Control of Gold Movements

The necessity for artificial control.—Up to this point the discussion has centered around the largely automatic movements of gold from one country to another, and its distribution among different countries. While, as has been shown, there is no danger of the complete loss of a country's monetary gold stock through exportation and while, in the long run, a country may anticipate retaining or acquiring as much gold as it really needs in relation to the needs of other countries, it is nevertheless true upon occasion that such a loss of gold as would take place under the working of automatic forces would disrupt the smooth working of a given country's credit system and lead to serious immediate consequences. Under such circumstances, at least a measure of artificial control over gold movements is desirable.

Present powers of the Federal reserve banks.—This fact was recognized in the United States at the time of the passage of the Federal Reserve Act with the result that the act conferred upon the Federal reserve banks certain powers which would provide them with some control over gold movements. The section of the act which regulates the open-market operations of the reserve banks provides that "every Federal reserve bank shall have the power:

"(a) To deal in gold coin or bullion at home or abroad, to make loans thereon, exchange Federal reserve notes for gold, gold coin, or gold certificates, and to contract for loans of gold coin or bullion, giving therefor, when necessary, acceptable security, including the hypothecation of United States bonds or other securities which Federal reserve banks are authorized to hold;

"(b) To buy and sell, at home or abroad, bonds and notes of the United States. . ." [5]

The usefulness of such powers, when placed in the hands of central banking institutions like the Federal reserve banks, which are not operated primarily for profit, is beyond question. Gold may be purchased abroad and imported at a loss if such action is necessary to protect the reserve position of these banks. Or, if it is not desired actually to import gold, but merely to prevent its exportation, it is possible either to buy or borrow gold abroad and have it credited to the foreign accounts of the reserve banks. This constitutes a supply of funds abroad which may then be sold to foreign exchange bankers at a rate sufficiently low to prevent them from drawing out gold from the reserve banks for export.

In a country which has an international market for short-time loans, the regulation of the rate of discount by the central bank may be of importance in preventing an outflow of gold from the country. By selling securities in the market and raising its rate of discount, the central bank may fre-

[5] *Federal Reserve Act*, Section 14.

quently bring about a higher rate in the discount market, and a high rate in the latter market tends to make it more profitable for foreign bankers to allow their funds to remain there to be loaned out at the high rate than to withdraw them in the form of gold to their own countries. It is, of course, essential that foreign bankers shall have funds invested or on deposit in the center in question before the use of the discount rate for this purpose will prove effective. The Bank of England has always been in a favorable position in this respect, for London has held the position of world financial center for many years. This means that bankers from all parts of the world maintain deposit accounts in London, so that an increase in the possible return to be obtained from lending these deposits in London has the effect of preventing, for a time, some of the exports of gold which would otherwise take place.

Control of gold movements in the United States.—The position of the United States in this regard has undergone some marked changes in comparatively recent years. Before the Great War, not only was there no central banking structure in this country, but very few foreign deposits as well. American exporters and importers, as contrasted with English houses engaged in foreign trade, had to take the initiative in making both collections for goods sold and payments for goods bought. Further, there was no highly developed open market for commercial paper in New York in which foreigners could readily lend funds if they had them available in this country for that purpose. As a consequence, high money rates in the New York market did not offer the same obstruction to gold exports that similar rates in London were likely to do.

After the establishment of the Federal reserve system, there was no opportunity to use the powers bestowed on the Federal reserve banks for the purpose of manipulating gold movements throughout the War period. Since the crisis and

depression of 1920–1922, however, the reserve banks have attempted to exert some control over gold movements, although their efforts have been largely in the way of preventing excessive imports of gold and thus aiding in the reestablishment of the gold standard by European countries. It is probable, for example, that the action of the reserve banks in creating exceedingly easy money conditions in the New York market in 1924 was with an eye to preventing further gold imports from England, thus making it easier for that country to arrange for its return to the gold standard. Again, in 1927, the reserve banks purchased $60,000,000 of gold which was held temporarily in London and thus could not be imported into this country. Later in the year, through heavy purchases of securities in the open market and the lowering of their discount rates, the reserve institutions created extremely easy money conditions in New York with the result that there was a net export of gold from the country at a time of year when imports of the metal are most likely to occur.[6] The reserve banks have also participated in extending gold loans at various times to countries that were stabilizing their currencies and returning to a gold basis. These are abnormal conditions, it is true, for the central bank is usually more concerned to prevent an outflow than an inflow of gold. Nevertheless, there is no reason for thinking that the reserve banks will not be able to exert a significant amount of control over gold exports when the time arrives at which such pressure is needed. The postwar period has seen a large increase in the number and size of foreign balances which are maintained in New York banks, as well as the development of a substantial market for bankers' acceptances, and some ability to control future gold exports through the manipulation of discount rates by

[6] For a description of the gold policy of the Federal reserve banks during 1927, see the *Annual Report of the Federal Reserve Board*, 1927, pp. 9–11. The course of gold movements from 1914–1927 is traced on pp. 12–14.

the reserve banks—especially the Federal Reserve Bank of New York—seems probable. At all events, it is certain that the Federal reserve banks have been endowed with adequate powers to protect their reserve positions and the safety of the credit structure by preventing the immediate loss of unduly large quantities of gold.

Artificial control desirable.—There can be no question but that some provision for the artificial control of short-run gold movements is desirable. Such control is not capable of interfering permanently with the distribution and movements of the monetary gold stock of the world in accordance with the principles which have been discussed in the previous section of the chapter. These are long-time results of fundamental economic and industrial conditions. It is rather with the short-run and for the most part temporary movements of gold that artificial control is concerned. By and large, we can depend on the automatic working of economic forces to adjust the distribution of gold in a satisfactory fashion, just as our whole economic order is, for the most part, adjusted; but the automatic process of adjustment is not always easy. It is, then, to maintain the smooth working of the credit system and to satisfy the essential needs of the domestic money markets in periods of strain or readjustment that some measure of artificial control is to be desired. The Bank of England has for years adjusted its discount rate and open market operations and has regulated its reserve position to fit the needs of the London money market with the idea of protecting the English credit structure. Prior to the establishment of the Federal reserve system, short-run gold movements into and out of the United States frequently depended more upon the actions of the Bank of England and other central banks than upon the real needs of the domestic credit markets. Although the unusual conditions which have prevailed since the war have made unnecessary the resort to some of the powers of control

which have been bestowed upon the Federal reserve banks, namely, those necessary to prevent gold exports, these institutions have nevertheless rendered excellent service in assisting various countries to return to the gold standard and stabilize their currencies, a service which would not have been possible under our old system. Further, a return to more nearly normal international monetary conditions will place the reserve banks in a position where it may be necessary at times to protect their reserve position, and the powers which have been given them are ample to enable them to accomplish this end when the need arises.

QUESTIONS FOR STUDY

1. What is the mint par of exchange between the United States and England? How is this figure arrived at?
2. Describe the forces which bring about gold shipments from one country to another.
3. "There is no particular rate of exchange at which gold will always be shipped from one country to another." Explain why this is so.
4. "If the price level of one country rises out of all proportion to the price levels of other countries, gold will tend to flow from the former to the latter." Give the argument in support of this statement.
5. Why is there no danger of gold being exported from a country until it is denuded of its monetary stock? Explain fully.
6. Show that the world stock of monetary gold tends to be distributed according to the needs of the various gold standard countries.
7. What exceptions are there to the principle that a country's exports and imports of gold tend to counterbalance one another over long periods of time?
8. Why is the artificial control of gold movements at times desirable?
9. What are the powers of the Federal reserve banks which are intended to give them a measure of control over gold movements?
10. To what extent have the reserve banks found it necessary or desirable to make use of these powers?
11. Can the artificial control of gold movements interfere materially with the distribution of the world's gold stock in the long run? Why or why not?

CHAPTER XIX

INTERNATIONAL EXCHANGE AND THE VALUE OF GOLD

Introduction.—The two preceding chapters have been devoted to a consideration of the relationships among countries which arise out of international exchange, and the subjects of exchange rates and gold movements have been treated in some detail. The purpose of the present chapter is to take a bird's-eye view of these relationships and to examine their effect on the value of gold. The value of gold, as previously stated, is determined by its quantity in relation to the demand for it, and the use of gold in international exchange is one of the factors which enter into the determination of the demand. As in domestic exchange, the use of credit money, while increasing the quantity of means of payment, reduces the demand for gold. Accordingly, it will first be necessary to consider the use of credit money in international exchange, as the extent of its use in this direction plays a part of some importance in the determination of the total monetary demand for gold. Having done this, we shall conclude the discussion of foreign exchange by examining the forces which enter into the determination of the world value of gold.

Earlier exchange relations in the United States.—We have seen that within the United States demand deposits constitute the basis of our most important exchange medium, and that this is made possible by a comprehensive system of clearing checks and drafts which results in a substantial

cancellation of conflicting claims. The case is somewhat similar in regard to foreign payments, although no comprehensive and centrally organized clearing system, such as that which now exists in the United States, can be said to exist. With respect to international payments, the situation is more nearly akin to that which existed in the United States before the establishment of the Federal reserve system in 1914. Under this earlier arrangement, various banks were in the habit of maintaining balances in the financial centers, of which New York was the chief. As checks and drafts were collected in and about the financial centers for banks which kept deposits at these points, the deposit accounts of said banks were credited with the amounts collected. When, in turn, checks on these institutions themselves were eventually deposited in banks in the financial centers and sent back to the drawee banks for collection, payment was made by drafts on the accounts of the latter banks with their correspondents in the financial centers. The New York banks held balances for other banks located in all parts of the country, and at times it was more convenient for a drawee bank to settle claims against itself with a New York draft rather than with a draft on a correspondent bank in the city from which the checks had been sent, in this manner transferring some of its New York funds to other city banks. This would be the procedure when the drawee bank's account in New York was larger than necessary, while its deposit, if one was maintained, in the city from which the checks and claims against it were sent was relatively small. Other banks maintained substantial accounts only in New York and paid the checks presented against them by out-of-town banks almost entirely by means of drafts on their New York accounts. The exact methods used by different banks in collecting and paying out-of-town checks varied from bank to bank, but the general result was that most payments and collections were put through by means of drafts on corre-

spondent banks, so that the use of lawful money for effecting out-of-town payments was largely obviated. From time to time, however, when the preponderance of payments was running in one direction, it became necessary to ship notes or lawful money in order to build up deposits with correspondents when these deposits had been drawn down to too low a point. Nevertheless, payments running in opposite directions counterbalanced each other for the most part, and the shipment of lawful money was necessary only occasionally to cover an excess of payments in one direction.

Similarity of foreign exchange relations.—Approximately the same situation existed with respect to foreign payments prior to the Great War, with London holding the place of the financial center of the world. The relation of London banks to banks in other countries was analogous to that of the New York banks to banks in other parts of the United States. Certain banks in all the developed commercial countries maintained deposit accounts in a number of other countries with which they carried on a considerable business, but by no means were accounts maintained in all other countries. Certain banks in practically all countries, however, maintained deposit accounts in London, and this explains why a draft on a London banking institution was acceptable as payment in nearly every part of the civilized world. Foreign exchange bankers everywhere would buy such drafts, paying for them with domestic money, since they could send them to London and use them to build up their own deposit accounts in the banks of that city.

The fact that many debts, owed by individuals in the United States to people in other countries, were paid with drafts on London banks—with London exchange, as the term is used—explains why the rate of exchange between New York and London frequently remained above the point at which gold would be imported into this country for long periods of time in spite of the fact that our exports to Eng-

land exceeded our imports from that country by a good-sized margin in the usual course of events. In the examples given in the two previous chapters, it was assumed for the sake of simplicity that only such trade as was carried on between England and the United States affected the rate of exchange between those two countries. Actually, this is not the case. It is the relation between the foreign payments of a given country to all other countries and the payments of all other countries to it that determines the rates of exchange which actually exist. As for any single exchange rate between two countries, it depends upon the supply of funds which the banks of one country maintain in the banks of the other in relation to the demand for drafts against those particular banks, rather than upon the trade relations between those two countries. Drafts may be drawn by the banks of one country upon those of the other to pay for imports of goods from a third country, and such payments affect the rate of exchange as much as any others. Thus the presence of London as the world's financial center prior to the Great War resulted in many gold shipments to and from London which were not the direct result of trade relations between England and other countries. The situation was such that balances, becoming top-heavy in certain centers, could be transferred to London or vice versa, and gold had to be shipped only when the payments of one country to all others did not balance those of all others to it for a considerable period.

Economy of gold effected.—The result was the same as that accomplished within the United States, namely, that rights to claim gold were to a large extent substituted for gold as the medium of payment in international trade. As illustrative of the extent to which this substitution was effective, a single example will be given. In the fiscal year, July 1, 1908–June 30, 1909, total payments both ways between the United States and other countries amounted to slightly over $3,800,000,000. Of these payments, $136,-

000,000, or slightly less than 3.6 per cent, represented shipments of gold, of which $92,000,000 was exported and $44,000,000 imported.[1] It will thus be seen that the great majority of foreign payments were made by means of credit money in the typical pre-war year.

New arrangements as a result of the War.—In the preceding discussion, attention has been concentrated on the situation prior to the Great War. The reason for this is the fact that normal movements of gold between countries have not been resumed to any great extent since the wholesale departure from the gold standard—and consequent disruption of the exchanges—which occurred during the war. The various countries are rapidly returning to some sort of stabilized gold basis, however, and the return of something like the pre-war situation as regards gold movements is to be anticipated within a short time.

After the readjustment has been completed, the use of credit money in consummating the bulk of international payments with occasional shipments of gold to take care of adverse balances is to be expected. The general method of effecting payments will be the same as that already outlined for the pre-war period, but some alteration in specific arrangements seems probable. For one thing, New York will apparently hold a more important position as a financial center, relatively to London, than formerly. During and following the War tremendous quantities of gold have come into this country, so that the United States held about one half of the world's monetary stock of gold in 1927.

Meanwhile, changes in banking legislation in this country have been favorable to the development of foreign banking relationships. Under the circumstances, it seems probable that the banks of the United States, particu-

[1] The above figures are calculated from a table representing Sir George Paish's estimate of the balance of payments in the United States in the year mentioned. Reproduced in Taussig, *Selected Readings in International Trade and Tariff Problems*, p. 196.

larly those of New York City, will continue to hold a somewhat commanding position as depositories for foreign funds which have been acquired as a result of the War. Whether or not New York will eventually usurp the place of London as the financial center of the world is a question with which we are not here concerned. In any event, the position of the New York banks as holders of very considerable foreign deposits seems assured, and the responsibility of the Federal reserve banks in maintaining adequate gold reserves to support such deposits will be greater than would have been the case had the changes wrought by the War not taken place.

Greater possible economy of gold.—Another change in money arrangements which seems to be under way and which will increase the use of credit money in international payments should be noted at this point. The return to a full gold standard on the part of any considerable number of the countries which resorted to a paper currency basis during the War would entail an extreme degree of deflation and work unnecessary hardships. It would also result in the drawing away from the United States of a rather large proportion of the stocks of gold which have been acquired since the outbreak of the War. The problem of the countries on a depreciated paper basis has been, and is, to stabilize their currencies on a gold basis, but, at the same time, to devise methods of economizing the use of gold, so that their business may be carried on with a relatively smaller amount of gold coin or reserve than formerly. This may be accomplished by a partial repudiation through lowering the amount of gold in the monetary unit, or by exchanging one gold unit of the former weight and fineness for a number of paper units. Such action, however, while necessary to a considerable extent, is undesirable, and the gold content of the unit of value should be kept as high as possible, relatively to the old content. Another remedy, therefore, which will accomplish this

end in part, is to substitute paper money for gold in the domestic circulation, a reserve of gold of less than 100 per cent to be maintained against such paper money. In part, the economy of gold may also be arrived at by allowing the reserve against note issues or deposits to consist in some proportion of balances payable in gold in some foreign country. This situation existed in several European countries before the War. Germany, for example, through the medium of the Reichsbank, maintained considerable amounts of foreign bills which would be turned into gold in some foreign country when desired.[2] An economy of gold by this means could not, therefore, represent a new departure from the old system, but merely an extension of the use of a device already familiar.

The greatest economy of gold would occur if the banks of one center, say New York, came to hold regularly the bulk of the reserves of foreign countries in the form of deposit accounts. The Federal reserve banks, in such a case, would really hold the bulk of the final, or ultimate, gold reserves of the world, and all ordinary payments in international trade would be made with drafts on New York banks. These institutions would then act as a clearing house for all international payments and the use of gold for such purposes would be well-nigh obviated. This situation was approached before the War, with London acting as the clearing center. Nevertheless, the different gold standard countries retained reserves of gold at home which were at times considerably larger than necessary, so that a significant extension and refinement of the system as it then existed was not out of the question. The exigencies resulting from the war situation seem likely to effect some extension of the arrangements suggested, although it can scarcely be expected to result in a concentration of reserve deposits in any single center.

2 See Keynes, *Indian Currency and Finance*, Chapter II.

Large reserves necessary in depository countries.—The banks of the country, or countries, in which large amounts of foreign reserve funds are deposited must maintain large reserves in gold, as these reserves will have to form the basis not only for the domestic credit money, but for a considerable amount of foreign credit money as well. As a matter of fact, the central bank of such a depository country would have the task of maintaining suitable reserves and the responsibility resting upon this institution would be tremendous. It would have to stand ready to meet the demands of foreign bankers for gold at any time. Even though, in ordinary times, this demand for gold might be small, those in charge of the central bank could never be sure when a given country or number of countries might call for an exchange of deposits for gold, and any such call would have to be met. The failure to meet such demands would immediately result in loss of confidence and general disruption in international monetary affairs. The reserve of gold which such a central bank should keep would have to be high —as much as 60 or 70 per cent of its deposits. The economy in gold which would thereby be effected might thus seem to be negligible, but it must be remembered that many of the foreign deposits will be in the individual banks of the financial center rather than in the central bank. If the individual banks maintain a large share of their reserves against foreign (as well as domestic) deposits in the form of deposit accounts with the central bank, and if their reserves constitute only about 15 per cent of said foreign deposits, the economy of gold becomes apparent.

Possible saving on gold shipments.—We have noted the similarity between the general methods by which international payments are effected and the methods in use in the United States prior to the War. In both cases credit media have been used to effect the great majority of exchanges, and in both cases some shipments of reserves have

been necessary in order to pay balances. In the United States, the shipment of reserve money from one section of

MOVEMENTS OF GOLD TO AND FROM UNITED STATES

(In thousands of dollars)

Country of Origin or Destination	1928		1927			
	January		January		Calendar Year	
	Imports	Exports	Imports	Exports	Imports	Exports
Belgium	.....	2,000	.....	.....	1	2,200
England	.....	.....	.....	.....	39,396	8,562
France	1	7,500	14,695	.....	21,048	10,000
Germany	.....	105	.....	12,590	1	13,994
Netherlands	.....	4,000	2	.....	15,075	8,055
Canada	36,760	41	37,975	47	63,653	29,698
Central America	107	.....	110	3	1,224	253
Mexico	597	417	582	623	6,001	6,984
Argentina	.....	19,750	22	107	23	61,499
Brazil	.....	11,800	.....	15	.....	34,351
Chile	61	.....	2,629	.....	7,021	.....
Colombia	123	.....	161	996	1,489	1,001
Ecuador	102	.....	104	.....	2,247	.....
Peru	231	.....	179	.....	2,266	.....
Uruguay	.....	3,000	.....	.....	.....	2,000
Venezuela	37	700	50	.....	531	1,530
Australia	.....	.....	2	.....	21,920	.....
British India	.....	1,342	.....	.....	.....	2,974
British Malaya	.....	157	.....	235	.....	3,064
China and Hong Kong	.....	1,031	647	274	1,674	7,166
Dutch East Indies	104	230	.....	.....	1,499	1,960
Japan	.....	.....	2,000	.....	20,000	21
Philippine Islands	122	.....	149	.....	1,667	.....
All other countries	73	15	47	.....	800	6,141
Total	38,320	52,086	59,355	14,890	207,535	201,455

the country to another has been done away with to a large extent through the establishment and operation of the Gold Settlement Fund at Washington. Would it not be possible to effect such a saving on international gold shipments? A glance at the accompanying table from a recent number of *The Federal Reserve Bulletin*[3] will show the desirability of some such arrangement. In the course of the year 1927, $207,535,000 worth of gold was imported into the United States from 20 foreign countries. During the same period, $201,455,000 worth of gold was exported to 19 foreign countries. In 15 cases, some gold was exported to and imported from the same countries. It is clear that an international fund similar in nature to the Gold Settlement Fund in this country would have obviated these shipments to a large extent and effected a considerable saving in shipping costs. An attempt of such an international clearing arrangement was inaugurated in 1916. "In that year a convention was framed providing for the establishment of an International Gold Clearance Fund, based upon the conclusions of the International High Commission held in Buenos Aires in April of that year. There was proposed the establishment of an International Gold Clearance Fund, under a joint or multiple international guaranty, to facilitate financial transactions between nations without actual shipment of gold, similar to the machinery maintained by the Federal Reserve Board to settle balances between banks within the United States."[4] This attempt, however, proved futile. It is very difficult to get joint or unified international action on such matters, but there is a possibility that some similar proposal may receive favorable action at some time in the future.

Meanwhile, something has been accomplished in this di-

[3] March, 1928, p. 201.

[4] Bogart, *War Costs and Their Financing* (New York, 1921), pp. 143–144.

rection through the process of earmarking gold which has been followed by the Federal reserve banks—particularly, of course, the Federal Reserve Bank of New York. When gold is earmarked for some foreign banker, it is considered in the same light by the reserve bank as though it had been exported. Some foreign banks do not object to having their gold held in this country as long as they are sure that it is not being used as a basis for credit expansion by the reserve banks. By having it earmarked, these bankers are assured of having the gold set aside and not counted as part of the reserves of the reserve banks. If, at any time, a certain foreign bank desires to transfer some of its earmarked gold to some other bank in another country, it may accomplish this end by notifying the Federal reserve bank. If the bank to which the gold is to be transferred has no actual need for it, the reserve bank may be authorized to retain the gold and earmark it for the account of the latter bank. In this manner, a good many gold shipments are avoided, although not to the extent that would be true under the operation of an international clearance fund. Neither earmarking nor the operation of a gold clearance fund lead to any economy in the use of gold, but they do economize on the expense of shipping gold and are hence desirable arrangements.

Greater use of credit money probable.—Whatever the exact arrangements may finally be by which foreign payments will be effected in the future, it is fairly certain that they will tend toward a greater rather than a less use of credit money. That gold will be eliminated entirely from the scheme of money payments is not to be expected, nor, considering the vagaries of government legislation and control and the continuous pressure of certain groups for more and cheaper money, is it to be desired even were it possible. Some solid basis is necessary if the continuance of a reasonable degree of stability in the value of money is to be retained. Nevertheless, the use of credit money in both do-

mestic and foreign exchange is so economical, efficient, and convenient that its retention and even extension within the limits of reasonable security is to be considered advantageous.

The World Value of Gold

The world demand for gold.—It has been shown that the use of credit money, both domestically and internationally, results in a lower demand for gold than would otherwise exist. Since the world value of gold is determined by the demand for it in relation to the gold stock, the use of credit money has the effect of holding down the value of the metal. The monetary demand of the world for gold is determined by the aggregate amount of goods and services which the different gold-using countries stand ready and willing to part with in exchange for gold for monetary purposes. In countries like the United States and England, where the widest use of credit money has been resorted to, the demand for monetary gold, in relation to the amount of money work to be done, is less than in countries such as France, where the check system is only slowly coming into use. This means that, in the ordinary course of events, France stands ready and willing to offer a larger proportion of her wealth and income for gold than does the United States or England. This method of statement is, of course, figurative to a certain extent. Nations, as such, are not to be thought of as offering goods for gold in the ordinary case. What really happens is that, if a certain country ordinarily makes use of large amounts of gold coin for internal circulation purposes and insists on maintaining very large gold reserves, an increase in productive activity in that country will cause prices to fall and, barring a similar fall of prices in other countries, will result in an importation of gold. Since, by hypothesis, larger amounts of gold are needed to carry on a certain level of business transactions in this

country than in others, with a given fall of prices more gold will have to be imported to bring about an adjustment of the price level to those of foreign countries than would be the case with a similar fall of prices in a country which economized in the use of gold through resort to an efficient system of credit money.

Purchasing power as applied internationally.—In speaking of the world value of gold, however, we must have in mind the purchasing power of the metal over a somewhat narrower range of goods and services than would be included when looking at the domestic value of a given country's money. If all goods and services were capable of being transported from one country to another without cost, the world value of gold would coincide with the domestic value in each gold standard country, but the fact that such is not the case means that a change in the general price level of one country may or may not result in shipments of gold into or out of that country in proportion to the alteration of its price level as compared with those of other countries. Consequently, it is changes in the price level of commodities, services, and securities which do enter into foreign trade that determine the direction and extent of gold movements among the gold standard countries. In other words, it is the price level of those goods which have a world market which must be taken into account in considering the world value of gold. With this idea of the value of gold in mind, it is correct to say that the value of the metal in any of the gold-using countries cannot vary by much more than the cost of shipment to other countries without resulting in a movement of gold from one country to another which will continue until its value, within the limits set by transportation costs, is the same in all the countries under consideration.

The demand for gold and the demand for money.—It has been noted previously that, within a given country, the de-

mand for money is not identical with the demand for gold where various forms of credit money are used. On the other hand, it has just been stated that, internationally, it is the demand for gold which is important (in conjunction with the supply, of course) in determining the value of money in the gold standard countries. Actually, there is nothing contradictory about these statements. If, in a given country, say the United States, the usual relation between the amount of gold held for monetary purposes and the total amount of money is 1 to 8, then an increase in the demand for money at a certain level of prices in the United States amounting to $800,000,000, would constitute an increase in this country's demand for monetary gold to the extent of $100,000,000. In other words, domestically or internationally, it is the demand of individuals for money which determines any country's demand for gold for monetary purposes. Of course, it is true that an elastic bank note and deposit currency will permit an adjustment in the supply of money to the varying needs of business from time to time and so prevent changes in the price level which might otherwise take place. This is a short-time factor which may prevent immediate shipments of gold, but which does not have a long-time or normal application. Over long periods of time, there tends to be a certain relationship between the amount of gold and the quantity of credit money, and any permanent increase in the demand for money will tend to result in a fractional increase in the country's demand for gold.

Absolute and relative changes in the demand for monetary gold.—The demand of any country for gold tends, then, in the long run, to be determined by the customs and habits of the people and the attitude of the state, together with the volume of trade. We may recall here the distinction noted at an earlier point between absolute and relative changes in the demand for money and apply it to a nation's demand for monetary gold. Before the Great War, the demand for

gold for money purposes on the part of France was large because the Bank of France insisted on maintaining a reserve of large proportions behind its note issues, and because the people of France preferred to use notes and specie instead of checks in making payments. A change in the habits of the French people, such as the introduction and use of a check currency, would have resulted in an absolute decrease in the demand for gold on the part of France. On the other hand, assuming no change in the habits of the French people with regard to money payments, a decrease in the volume of trade would have brought about a relative decrease in the country's demand for gold.

Over any given period of time, there tends to be little absolute change in the demand for gold on the part of a given country. Habits and customs do not change rapidly and when the people of a country have become accustomed to certain methods of making payments it is difficult to bring about any far-reaching change of habits. This is not true of relative changes in the demand for gold. The trend of the volume of trade in the more advanced countries has been upward for many years. This factor in the demand for money must therefore be taken into account in any attempt to explain changes in the value of gold. With a few interruptions, however, the trend of economic development has been fairly regular and, if allowances are made for it, the fluctuations in the normal world value of gold have tended in the long run to vary inversely as the quantity and very nearly in proportion.[5]

All this was changed with the advent of the Great War. A tremendous absolute decrease in the demand for gold occurred in the great majority of the belligerent countries. The exigencies of the War made goods in the form of munitions, supplies, etc., relatively more important in comparison with gold than formerly, and the countries concerned readily

[5] See above, pp. 209–212.

relinquished large portions of their gold stocks in exchange for the needed goods. The concentration of gold in the neutral countries, especially in the United States, with no corresponding increase in the demand for gold in those countries, led to a marked decrease in its value. Internationally as well as domestically, then, it is seen that the movements in the normal value of money are a result of changes in the quantity, but that dynamic and abnormal changes in gold value are to be traced primarily to absolute changes in the demand for money.

Conclusion.—Broadly speaking, the same general forces and factors apply in the determination of the world value of money as apply domestically in the determination of its value. It will have been observed also that the forces which govern the movements of money and the use of credit money apply to the world situation. This is to be expected. Fundamental economic tendencies are universal in their application, and those which apply in the field of money are no exception to the general rule.

QUESTIONS FOR STUDY

1. Describe the earlier exchange relations in the United States and demonstrate their similarity to foreign exchange relations.
2. To what extent is an economy of gold effected by the methods used in foreign exchange? Illustrate by reference to some reliable estimate of the balance of trade in this or some other country.
3. Describe the new exchange arrangements which have been introduced in a considerable number of countries as a result of the War. Why do these arrangements make for an increased economy of gold?
4. To what degree is it possible to obtain a still greater economy of gold through an extension of such arrangements? Explain.
5. Under what conditions would the greatest economy of gold be effected? Is such a situation likely to occur in the near future? Why or why not?
6. What sort of arrangement would insure the greatest possible saving in the cost of shipping gold? Has such an arrangement ever been suggested? Adopted?

7. Show the manner in which the "earmarking" of gold effects a saving in shipping costs.

8. Does "earmarking" result in any economy in the use of gold? Explain.

9. What constitutes the world demand for gold for use as money?

10. "A large absolute change in the demand for monetary gold took place during the early years of the Great War." Defend this statement. Was the change referred to an increase or a decrease in the demand?

11. If the international value of gold is to be considered as its international purchasing power, how must the term purchasing power be understood? Is there any difference between this and the concept of purchasing power as applied domestically? Explain.

12. Distinguish between the demand for monetary gold and the demand for money.

13. What is the distinction between an absolute and a relative change in the demand for monetary gold?

14. Show that monetary principles apply internationally as well as domestically.

CHAPTER XX

THE STANDARD OF VALUE

Introduction.—At the very beginning of this book it was pointed out that the chief function of money was to serve as a medium of exchange, but that in order to perform this function satisfactorily it was essential that money possess a fairly high degree of stability of value as imparted to it by the standard of value adopted by the government. It was then noted that the majority of advanced countries had resorted to the gold standard, and the discussion in subsequent chapters was based, for the most part, on the assumption of such a standard in value. For years prior to the outbreak of the Great War the gold standard was generally conceded by business men, and by the majority of economic writers, to be without question the most satisfactory standard which could be obtained. The business men still hold to this opinion in large measure, but among writers on monetary problems a decided tendency has been visible of late years to emphasize the supposedly undesirable features of the gold standard and to advance projects for reform in an attempt to improve upon the situation as it existed prior to the War.

Because of this attitude, it is desirable for us to carry our analysis a step farther than we have already done and to make a critical examination of the gold standard and of the proposed substitutes as well. As a matter of fact, the question of the standard of value, together with that of the value of money with which it is closely interwoven, has become

the controversial high spot of current monetary literature. That the present-day methods of exchange are convenient, economical, and, in general, efficient, is pretty well recognized. Further, general principles regarding the circulation and distribution of money have become standardized and generally accepted. With regard to the use of gold as a standard of value, however, no such unanimity of opinion exists. We shall, therefore, first attempt to determine the real significance of the gold standard, and then consider the desirability of reform measures.

The Philosophy of the Gold Standard

What constitutes a gold standard.—In order that the nature of the gold standard may be clearly in mind, it will be advisable to bring together and review briefly the various characteristics of the gold standard which have been brought out at various points in the preceding chapters. In this way we shall be the better prepared to undertake a critical examination of its real significance.

A country is on a gold standard when it sets the value of its monetary unit in terms of a fixed weight of gold and permits a free flow of gold both into its monetary stock from other sources and out of its monetary stock into other uses. If paper or other credit money is used within the country, such money must be kept equal in value to the standard by providing for the direct or indirect convertibility of such moneys into gold. If these courses are followed, there can be no divergence between the value of gold as money within the country in question and its value in other uses, i.e., either in the arts or as money in foreign gold standard countries.[1] Any interference with the free flow of gold either into or out of the domestic monetary stock may bring

[1] In the latter case there may be a difference in value which is equal to the cost of shipping gold.

about a divergence between the value of domestic money and the value of gold in other uses. Interference with the free inflow of gold is unusual, but was resorted to by Sweden in 1916 when she suspended free coinage at her mints.[2] In this instance coined gold (and its paper representatives) rose in value for a time above the bullion value of the gold it contained. Interference with the free flow of gold out of the monetary stock is fairly usual in times of stress. By forbidding exports of the metal or prohibiting the melting of the gold coin for use in the arts, an outflow of domestic monetary gold is prevented and the value of the gold coin may (and usually does) fall below its value in other uses.

It is not necessary to the maintenance of a gold standard that gold shall be actually coined. To take a hypothetical case, suppose that the United States government should cease the coinage of gold, and that it should continue to issue gold certificates which would then be warehouse receipts, not for gold coin, but for a given number of grains of gold bullion held on deposit in the vaults of the Treasury.[3] If the government then freely issued certificates against gold brought to it and readily converted outstanding certificates into gold bullion on demand, there could be no question but that it would be just as fully on the gold standard as it is at the present time with its standard money of freely coined gold. The only difference would be a technical one, namely, that the gold would be held in the Treasury in the form of bullion instead of being actually incorporated in gold coin, which is not widely used as a medium of exchange, but lies in the vaults of the Treasury as backing for gold certificates, or reposes in the vaults of the banks. If, to cite another possible case, a country does not issue certificates against gold, but exchanges gold for notes, and vice versa, and uses the

[2] Cassel, *Money and Foreign Exchange After 1914*, pp. 79–80.

[3] Some of the gold certificates now in use are issued against gold bullion in this way.

gold as a reserve of less than 100 per cent against note issues, the difference is more than technical, for the quantity of money is thereby increased. But, so long as gold is exchanged for notes and notes for gold in a fixed proportion at all times, the flow of gold into and out of the monetary stock is not impeded and the country in question must be considered as on a gold standard.

The meaning of the gold standard.—We have now examined the requisites of a gold standard, and the next question which arises is, Just what does the gold standard mean? It means simply this: that the gold standard countries have chosen a certain commodity—gold—to act as a measure of value of all other goods and, in coined form, to act as money. To serve satisfactorily in these capacities, the commodity chosen should have the characteristics necessary to a good medium of exchange—portability, durability, cognizability, divisibility, and homogeneity—and should also possess a high degree of stability of value. That gold possesses the former group of characteristics has never been questioned. Further, the wide resort to the use of credit money in comparatively recent years has lessened the relative importance of these attributes. We need not, therefore, comment further on this phase of the gold standard. That standard is of chief interest at the present time in the light of its stability of value, and it is with this aspect of the question that we shall be chiefly concerned.

Absolute and relative value.—In examining the stability of value of gold a sharp distinction must be drawn between its relative and its absolute value. A considerable number of economists maintain that the economic value of any good can be considered only in relation to the values of other goods; in other words, that economic value must be relative. This position cannot be accepted as sound. To take an example, let us assume a community in which but four groups of products are produced and exchanged, viz., food, clothing,

buildings, and tools. These products will be exchanged in certain specified proportions, depending upon the importance which the people of the community attach to them in relation to their supply. Now suppose that by improved processes it becomes possible to produce and place on the market twice as much in the way of foodstuffs, clothing, and tools as before, but that no change takes place in the situation with respect to buildings. The result would be an increase in the value of buildings *in relation to the other groups of goods,* for twice as much food, clothing, and tools as before would be available to offer in exchange for buildings. But there is no reason for believing that the absolute value of buildings has undergone any change. The inhabitants of the community have exactly the same attitude with regard to the desirability of buildings as before the change in the quantities of other goods took place. Further, the supply situation for buildings has remained unchanged. Why, then, say that the value of buildings has risen? Why is it not more reasonable to assert that the other goods haven fallen in value while the value of buildings has remained unchanged?

If the relative value theorists are not yet convinced, let them consider a situation in which all goods but one are free. One good, however, is highly desired by the people of the community and is also very scarce. Would this one good have economic value? The theorist who claims that it would not must revise his whole notion of the forces (utility and scarcity) which result in such value. But how could the value of this good be measured? It could not be measured, and it is here that the difficulty has arisen. Value and the measurement of value have been confused to the detriment of sound economic thinking. It is quite possible for a good to have absolute economic value, and this applies to gold as well as to any other good.

The importance of absolute value in connection with the

gold standard.—Since one of the functions of gold in a country's monetary system—at present its most important function—is to act as a standard of value, it is generally deemed important, as has been noted, that this metal should have a high degree of stability of value. The question at once arises, then, as to whether it is the absolute or the relative value of gold which should be stable. From a sound logical point of view, there can be no question but that it is the absolute value of gold which is important in estimating its stability. A real standard should remain absolutely unchanged. If all dealers and merchants should decrease the size of their gallon measures, this would not effect the slightest change in the standard gallon at Washington. Yet if more economical processes and increased efficiency result in lower costs and lower priced goods, it is at once stated that the value of gold has risen when, absolutely, its value may not have changed at all. This should be perfectly clear, but apparently is not recognized by many students of money. Professor Fisher, for example, writes, "Imagine the modern American business man tolerating a yard defined as the girth of the President of the United States! Suppose contracts in yards of cloth to be now fulfilled which had been made in Mr. Taft's administration! And yet the shrinkage in such a yardstick would be no greater than the shrinkage we have suffered in the far more important yardstick of commerce, the dollar; and this yardstick is used in all contracts in which the yardstick of length is named and in all others besides!" [4] Fisher is quite unwarranted in writing in this fashion, for he is referring to the relative value of gold, or its purchasing power, and there is no analogy between the relative value of gold and an absolute standard such as a yardstick.

Stable purchasing power actually desired.—The fact of the matter is that, practically, a standard of value which is

[4] *Stabilizing the Dollar*, p. 83.

absolutely stable (as are the standards of weight, length, etc.) is not what is wanted, but rather a monetary unit which has a fairly stable purchasing power. The reason for this is that the purpose of money in the economic system is to facilitate exchanges of goods and services, and the quantity of money should thus bear some relationship to the amount of money work to be done. If a close correlation is maintained between changes in the money work to be done (the volume of trade) and changes in the amount of money, the result will tend to be a stable price level. This, of course, assumes that money is wanted only for the purpose of procuring other goods or services. Such an assumption is valid in the long run, but over short periods of time absolute changes in the value of money will prevent it from holding good. It has been noted, however,[5] that in a country with a highly developed banking system, these absolute changes in the demand for money tend to be of slight significance, because an increase in the demand for money to hold on the part of one group in the community is largely offset by the action of the banks in lending out these funds to other members of the community who will spend them. The efforts of the banks, then, to keep all of their available funds at work at all times, although not always successful, results pretty largely in a continuous use of the money stock.

Two things should be noted concerning the discussion of the preceding paragraph. The first is that stability of purchasing power is deemed desirable because of the fact that such stability is incidental to facilitating properly the country's exchanges and allowing prices to indicate the real relation between the economic values of the things exchanged. If too much or too little money is available, the proper functioning of the economic system will be interfered with. This is quite a different thing from insisting on the necessity of

[5] Pp. 227–228 above.

a stable purchasing power as an end in itself which is in the interests of justice, an idea which is much stressed, but which is difficult to uphold in any satisfactory fashion. The second point which must be emphasized is that the criterion of purchasing power must be a more inclusive index of prices than a wholesale commodity price index. The volume of exchanges includes exchanges of goods, services, land, securities, and everything else which is bought and sold for money, and not merely exchanges of goods at wholesale. It is true that prices of goods at wholesale are always *tending* toward an equilibrium at prices which represent their social significance and cost, but actually they fluctuate above and below this level and, if a wholesale price index alone is used to measure the stability of the purchasing power of money, the trend of such an index will give a more accurate notion of changes in general purchasing power than the index itself.

The stability of the relative value of gold.—But what is the relation of all this to the gold standard? Briefly this, that so long as countries maintain all of their moneys at parity with gold, the supply of gold is an important factor in determining the quantity of money. Some expansion and contraction in the quantity of credit media which are used as money may be effected without a corresponding change in the gold stock, but, barring any comprehensive change in monetary arrangements, the total quantity of money tends to vary with changes in the monetary supply of gold in the long run. Granting that stability of general purchasing power is desirable for the reasons just noted, we may then pass judgment on the gold standard by ascertaining the degree of stability which has resulted under its use. From the world point of view, we can do no better in attempting to measure changes in gold purchasing power than by referring to the trend of Sauerbeck's index from 1880–1910. As Cassel pointed out in connection with his attempt to dem-

onstrate the truth and error of the quantity theory statistically,[6] the index in question was constructed during this period largely from the gold prices of goods sold in world markets in a free-trade country. By using the trend of this index, a fair indication of changes in the purchasing power of gold during the period in question may be obtained. By inspection of the plotted data, rough approximations of the changes in trend may be arrived at. Apparently, there was a fall of about 20 per cent in the trend of this index during the 16-year period 1880–1895, and a rise of approximately the same percentage from 1895–1910. These are not changes of marked proportions, and are by no means sufficient to condemn the gold standard as unsatisfactory during the years preceding the Great War. This is especially true in view of the fact that a commodity price index was used. The trend of commodity prices tends to bear a fixed relationship with the general price level only when no important changes take place. New and improved methods which result in reduced costs may, and probably will, alter the relation between the prices of commodities and the prices of services and other elements in the price system. Consequently, the trend of commodity prices gives only a rough sort of approximation of changes in the general purchasing power of gold, and cannot be given too much weight. It seems reasonable to believe that during pre-war years the general purchasing power of gold was fairly stable.

In the course of the war and post-war periods, the purchasing power of gold first fell tremendously and then rose somewhat, but not to the old level. The marked fall in the world purchasing power of gold resulted from the decrease in the demand for the metal on the part of most of the belligerent countries. These countries departed from the gold standard and the world supply of gold was largely concentrated in neutral countries and the United States. Nat-

[6] See above, p. 210.

urally, monetary conditions were greatly disrupted by this widespread resort to a paper basis and its accompanying inflation. After the close of the War, some marked readjustment became essential. Two possible courses were open. Either the various countries might return to the gold standard, or some other standard than gold might be adopted. It was feared by many that stabilization by the first method would be unsatisfactory because of a predicted scarcity of gold. Others believed gold to be essentially unsatisfactory even under the best of conditions, and supported more far-reaching methods of reform. We shall examine the latter type of proposal in detail directly. Actually, the former method of stabilization has been followed and the world has once again approached a gold standard basis. It is therefore of practical importance to discuss briefly the possibilities of a future gold scarcity before treating the question of reform measures.

The scarcity of gold.—A growing scarcity of gold, i.e., the production of gold at a diminishing rate relative to the money work to be done, would be undesirable in that it would be likely to result in a long downward trend of prices with a consequent depressing effect upon general business conditions. It is the opinion of many students of the subject that such a scarcity of gold cannot be avoided. Let us examine the situation from both the supply and demand sides and see whether or not this stand can be upheld. With the decrease in the purchasing power of gold which occurred during the war and post-war periods, annual gold production fell from more than 22½ million ounces in 1912 to slightly less than 15½ million ounces in 1922. By 1926, however, it had jumped to over 19 million ounces, in spite of the fact that price levels were still far above the pre-war level in the latter year.[7] More efficient and lower cost methods of extraction have evidently overcome to some extent the rela-

[7] *Annual Report of the Director of the Mint*, 1927, p. 237.

tively high level of prices, and it does not seem unreasonable to expect still larger gold production as time goes on.

On the demand side of the situation, it is to be noted that many of the countries which have returned to the gold standard have done so by partially repudiating their paper obligations, so that their demand for monetary gold has not been greatly increased over the pre-war demand by their return to a gold basis. Further, in most cases, new economies in the use of gold have been introduced which, if permanently retained, will effect a permanent decrease in the demand for the metal. The methods by which it has been possible to economize in the use of gold have been considered in the previous chapter (pp. 357–359). By maintaining reserves in part in the form of exchange on foreign centers, and by a resort to the more extended use of credit money at home, various countries have been able to reduce their monetary demands for gold. Such methods are capable of still further extension if necessary, so that there seems to be no immediate cause for misgiving. It does not, in fact, seem probable that the practically universal return to the gold standard which has taken place will have the untoward effect which a number of students seem to apprehend.[8] We may, therefore, accept the belief that the gold standard will again function at least as well as it did before the war. To some, however, this is not a satisfactory state of affairs, and it is to a critical discussion of the plans of such opponents of the gold standard that the remainder of the chapter will be devoted.

A Managed Currency

What the plan proposes.—Perhaps the most outstanding of the proposals for far-reaching monetary reform is the plan

[8] This is the line of reasoning followed by Professor Kemmerer and this author believes it to be sound. See *The American Economic Review, Supplement*, March 1928, pp. 67–70.

for a managed currency. The substance of the plan, as well as the ends which it proposes to accomplish, have been well stated by Dr. B. M. Anderson as follows:[9]

> The world's return to the gold standard is opposed by an exceedingly able group of professional economists headed by the brilliant Mr. J. M. Keynes of England. This school rests its position upon the quantity theory of money. It denounces the gold standard as a relic of barbarism, and proclaims that a managed irredeemable paper currency represents the scientific ideal. It maintains that gold is highly variable in value, but that an irredeemable paper money can be held to a fixed value by manipulations of the quantity of money and bank credit. It proposes to manipulate the quantity of money and bank credit by various devices, chief among them being variations in the discount rates in the central banks of issue, open market operations on the part of these banks, and coördinated policy on the part of the public treasury in borrowing and repaying. With these methods it is proposed not merely to regulate prices, but also to regulate the whole business and industrial situation, eliminating the ups and downs of business which are regarded as due to variations in the average of prices.

This, in a nutshell, constitutes the proposal for a managed currency. What can be said for it? The answer to this question depends upon the possibility of attainment of the plan, its desirability, and its political expediency. Let use examine these three aspects of the proposed measure in the order named.

Possibility of attainment.—The satisfactory working of this sort of proposal very evidently depends upon the soundness of the quantity theory of money—and more. It depends also upon the belief that individuals will be willing to accept money which is irredeemable in gold. As for the relation between the quantity theory and the workability of the managed currency plan, we shall consider this phase of the matter shortly. For the present, however, attention will be directed to the fact that the scheme proposes the complete abolishment of gold redemption. The belief has been expressed in a number of earlier connections that money must

[9] *The Chase Economic Bulletin*, March 23, 1925, p. 3.

have value in itself, or be convertible into something which has such value, in order to be acceptable, and that consequently paper money must be redeemable on demand—directly or indirectly—in gold or some other article of value before it will be readily accepted. At times, it is true, governments or central banks do cease to redeem their notes on demand, and at such times it is also true that these notes do continue to circulate. But it must be remembered that the degree of acceptability of such irredeemable paper varies directly with the prospects of, and confidence in, the resumption of gold payments on the part of the issuer. If confidence in the future redemption of irredeemable paper money disappears, such money ceases to be acceptable and its value depreciates to zero. If this is the case, and all the available evidence seems to indicate that it is, the plan for a managed currency lacks one of the essential features of a satisfactory medium of exchange, and so would prove unworkable.

In opposition to this view it may be claimed that past experience cannot be taken as a guide in this particular connection, for the issuance of irredeemable paper money by governments has almost invariably resulted in over-issues and consequent inflation, whereas the managed currency plan proposes a careful and scientific regulation of the currency supply which would engender a high degree of confidence on the part of the people. There is a chance here for a difference of opinion as to whether or not the requisite degree of confidence could be thus engendered, and the only possible method of deciding the question would be to give the managed currency plan a trial. The present writer is inclined to believe that the necessary confidence could not be achieved. Assuming, however, that it could be, we shall examine the plan further on the basis of its merits.

A managed currency and the quantity theory.—It has been noted that the workability of the managed currency

plan depends upon the soundness of the quantity theory. This theory may be considered sound as a theory of normal money value changes. In other words, a regulation of the quantity of money might have hopes of attaining some success as a regulator of the long-time trend of the general price level. This, however, is rather far from the idea which the proponents of a managed currency have in mind. They seem confident that the adoption of their plan would iron out all fluctuations in the wholesale commodity price level and, by this means, would eliminate the ups and downs of business known as the business cycle. This view of the matter completely overlooks the effects of changes in the demand for money. The demand for money, in the long run, is always tending toward constancy with the exception of a long-time relative increase in demand due to increasing productivity. At any given moment, however, the demand for money may be above or below the normal, and it is certain to be the result of a complexity of causes. The desire of business men for money to hold at any given time will depend upon their past actions with respect to contracts, purchases, sales, and a whole mass of other factors as well as upon their psychological attitude, and the extent to which these factors can be controlled by governmental regulation of the money supply and central bank control of the credit situation is negligible. This is especially true of attempts to control the wholesale commodity price level. If, for example, such a plan were in operation in the United States, decreases in the monetary stock of moderate amount might well result in a withdrawal of surplus funds from the call loan and security markets by the commercial banks who would use these funds in extending loans to their own regular customers. This action might prevent any great rise in the general price level by bringing about a decline of security prices, but it would not have the desired effect on the price level of commodities at wholesale. Similarly, an

increase in the amount of money would be likely to result in easy money conditions in the markets for surplus funds, but would not necessarily induce any rise in commodity prices if the attitude of the business community were not favorable to such an increase in prices.

Proposed plan too simple.—The business cycle and the price system are exceedingly complex phenomena. One has only to review carefully the constructive works of Mitchell and Mills along these lines [10] to arrive at a full realization of this complexity. To suppose that a single simple device such as the control of the volume of money will solve the problem of the business cycle exhibits an excessive degree of optimism. It will be well to recall here the analogy which was drawn between money and an oiling system in the first chapter. It is possible for an oiling system to get out of order and, if it does, the results will be undesirable. The same is true of the monetary system. During the war, the monetary systems of a good many countries became sadly deranged and the effects of this derangement were deplorable. The monetary systems of these countries had to be overhauled and put in order, but it is not to be supposed that they could be so ordered as to eliminate all other disturbing factors in the economic system. Yet this is what is contemplated by the advocates of a managed currency. By tinkering with the oiling system, they propose to perfect the operation of the whole machine. Dr. Anderson dubs the managed currency scheme "chiropractic economics" [11] and this analogy, like that with the oiling system, is substantially sound. The managed currency plan would not effect the far-reaching remedies which are anticipated by its adherents. As previously pointed out, however, it might accomplish something toward stabilizing the long-time trend of the in-

[10] Mitchell, *Business Cycles* (New Edition) and Mills, *The Behavior of Prices.*

[11] *Op. cit.*, p. 9.

ternal general price level of any given country. To what extent, if at all, would this result be desirable?

Desirability.—The stabilization of the long-time trend of prices would be likely to prove desirable to the extent that the elimination of falling price trends would tend to prevent the long drawn out periods of business depression which have accompanied periods in which the trend of prices was downward.[12] On the other hand, the periods of depression would be still shorter if the trend of prices were upward, and on this score a good argument could be made for regulating the amount of money in such fashion that a rising trend of prices would result. On the grounds of justice, there is little to be said for stabilizing the trend of prices to a greater extent than has actually been in evidence in the past under the gold standard. The inequities which occur from time to time in the business world are rather the outcome of the maladjustments which attend the business cycle than of any long-run changes in the trend of the price level.

Presuming, however, that it is deemed desirable to level out the trend of domestic prices by means of a managed currency, the criterion by which the quantity of the currency is regulated should not be an index number of wholesale commodity prices. From the long-time point of view, the demand for money increases with the increase in population and in economic productivity. It is possible to determine with approximate accuracy the trend of growth in this demand for any given country. Such growth follows a fairly regular course and can be predicted (at least for some years in advance) with some exactitude. If the quantity of money were increased in proportion to this element of growth in the demand for it, a close approximation to a stable trend of prices should be attained. The quantity theory is sound only in relation to the normal purchasing power of money and only provided that changes in normal demand are taken into

[12] See above, p. 275.

account. Since this is the case, it follows that the anticipated increase in the normal demand for money, and not the existing price level, should be the criterion of regulation if the plan is to be run on a scientific basis.

Instability in foreign trade.—So far we have been considering the advantages and drawbacks of a managed currency within a given country. But since other countries may be following a similar procedure, it is necessary to consider the effects of any widespread adoption of the proposal on conditions in the field of foreign trade. Here there would almost certainly result considerable instability. This is admitted by the advocates of a managed currency who claim, however, that internal stability is to be desired over stability in the foreign exchanges. Under the managed currency plan, foreign exchange rates would have to adjust themselves to the price levels of different countries in accordance with the theory of purchasing power parity. Of course, if all countries adopted the plan and kept their short-run commodity price levels absolutely stable, the exchange rates would tend to settle at points which would reflect the relative purchasing power of the various monetary units and would remain comparatively stable. We have seen, however, that the short-run commodity price level cannot be controlled in this fashion, so that, actually, exchange rates would fluctuate rather violently from time to time. This would introduce an element of uncertainty and speculation into foreign exchange transactions which could only be detrimental to the foreign trade of the various countries.

It has at times been thought that gold could still be used to settle international balances even if it were demonetized by various countries, and that in this fashion the foreign exchanges could be kept stable. The unsoundness of this idea is clearly set forth by Professor Cassel, who writes,[13] "Some people seem to believe that gold, after such de-

[13] *European Currency and Finance*, Vol. I, p. 206.

monetization, could still be used as an international means of payment. But there is no ground for this hope. When gold is no longer taken in payment at a fixed price, it is reduced to a simple commodity not particularly serviceable for effecting international payments." The inability to use gold in settling international balances would, then, leave the exchanges to fluctuate with short-time changes in the price levels of different countries with the resulting disruption of foreign trade which has already received comment. It may be noted, also, that a disruption of international markets would almost certainly be reflected in the way of greater difficulties in the attainment, domestically, of the aims of the managed currency proposal.[14]

In view of the many drawbacks to the managed currency plan, it can scarcely be accepted as desirable, even in so far as it is possible of accomplishment. There is one phase of the proposal, however, which has not yet received attention —its political expediency. This is a practical aspect of the matter which is of major significance, and it is therefore proposed to consider the expediency of the project with a view to making our analysis complete.

Political expediency.—Even if the managed currency plan could be made to work after a fashion, it is almost certain that its adoption would be politically inexpedient. There will always be considerable hesitation on the part of a people about entrusting the tremendously important function of regulating prices to the government. Further, as far as the United States is concerned, it is doubtful if such an idealistic measure could be passed, or, if passed, whether it could be long retained. As noted, no short-run stability of the commodity price level could be obtained, which would prove dissatisfying to those desiring complete price stability. On the other hand, business men, who are generally inclined to favor rising prices, would probably blame the government

[14] See B. M. Anderson, Jr., *op. cit.*, p. 11.

control if the price level failed to rise, or fell somewhat, whether that control were responsible for the existing price situation or not. In fact, it is quite certain that the dissatisfaction of the business community in general with government control of the price level would be great enough so that all grievances would be laid at the door of the managed currency plan, and it is ventured by way of opinion that the plan could not be made politically successful.

All this assumes that the scheme would be carried out by the government in a scientific manner. This might be the case were the plan actually put into operation, but there are grave dangers in permitting any government to control the quantity of money. Political pressure would almost surely be brought to bear on the lawmakers to exert control of the currency in the interests of various politically powerful groups, and, in the face of such pressure, the proper administration of the plan would be very likely to go by the board. Although the Federal Reserve Board, a politically appointed body, has operated with considerable success, it cannot be assumed that a board of managers for the currency would be equally successful. The Federal Reserve Board has been guided by sound banking principles which are the result of many years of banking experience in all countries. There would be no such generally accepted principles for regulating the currency under a managed currency plan. Even the economists who advocate the plan have varying ideas as to certain features of its operation such as the type of index number to be used, how the index is to be constructed, and other matters. With such conflicting opinions, even on the part of supposed experts in the field, the managing board would not be in a position to combat political pressure to any advantage. Quite apart from the theoretical merits of the managed currency plan, its political workability is open to the most serious doubt.

The stabilized dollar.—Before closing the discussion of managed currencies, it will be well to take note of an American proposal of similar nature to the one already discussed, but with one outstanding difference. The reference is to Professor Irving Fisher's proposal for a stabilized dollar.[15] The chief difference between this plan and the managed currency scheme is that the former includes a provision for the redemption of the government currency in varying amounts of gold, the amount of gold in the dollar at any time to depend upon its purchasing power as measured by an index of the wholesale commodity price level. Adjustment of the gold content of the dollar under this plan would be made every two months in accordance with variations in the price index. Thus, if the index stood at 101 (the index of the date at which the plan would go into effect being 100), it would indicate a decrease in the purchasing power of the dollar and the amount of fine gold in the dollar would be increased by one per cent. A fall in the index from 100 to 99 would, in like fashion, be followed by a reduction of one per cent in the gold content of the dollar. In this fashion, a given number of ounces of gold would represent a varying number of dollars at different times, and the stock of standard money would accordingly vary in such manner as to offset variations in the price index and maintain a stable price level. This variation in the number of units of standard money would have to be supplemented by discount rate and open market control by the central bank in order to be effective, and provision for such supplementary control is planned by the author of the proposal for a stabilized dollar.

The gold redemption feature of Fisher's plan would be likely to overcome one difficulty which would attend the managed currency scheme, namely, the difficulty of getting people

[15] A complete and highly detailed description of this plan is to be found in Professor Fisher's book, *Stabilizing the Dollar.*

to accept the irredeemable notes which it is proposed to issue under the latter project. Aside from this, the two designs are identical in their aims and methods, and it is needless to repeat the detailed analysis of the preceding pages in estimating the merits and drawbacks of the stabilized dollar. In brief, neither plan is possible of attainment to anything like the extent that its advocates anticipate. The best that could be accomplished would be a stabilization of the long-time trend of prices, and the criterion for adjustment of the quantity of money under such circumstances should be the anticipated increase in the normal demand for money and not a wholesale commodity price index. Both plans would unsettle foreign trade through introducing a large element of uncertainty into foreign payments, and domestic trade would almost certainly be adversely affected on this account. Neither proposal is politically expedient. On the whole, the plans for a managed currency and a stabilized dollar appear to have little to recommend them. It has been indicated, however, that it might be possible to level out the long-time trend of the price level by the adoption of some such plan. The question then arises as to whether or not it is worth while to try to stabilize the trend of prices by resort to one of these measures. The answer must be in the negative. These movements are of small practical moment, and the hazards which would attend any attempt to introduce a plan like Fisher's or Keynes', which is built upon the necessity of government regulation through an index number, are too great to make such an attempt worth the price. The same conclusion holds for current proposals which would authorize the Federal Reserve Board to make use of its powers of credit control to attain a stable commodity price level. The reformers, it seems, have been barking up the wrong tree. The evil consequences of the business cycle, which they propose to eliminate, have their sources primarily in the dislocation of trade and industry rather than in the present

monetary system and could not be eradicated by the methods proposed. This being the case, it does not seem worth while to attempt to attain less significant ends by resorting to measures of this sort.

Conclusion.—The purpose of money is to facilitate exchanges of goods and services, and our present monetary and banking systems attain this purpose, on the whole, efficiently and well. Of course, there are abuses which should be remedied, but their cure lies largely with the bankers themselves. Perfectly adequate credit control of the proper sort is to be had through the agency of the Federal reserve system, and the present Federal Reserve Act which authorizes the extension and control of credit on the principle of "accommodating commerce and business" is in complete accord with the main function of money and credit. Action in accordance with this principle by the banking system will, in itself, tend to result in a relatively stable general price level, but it should be remembered that a stable general level of prices is merely incidental to the proper functioning of a country's monetary and banking machinery, and is not to be advocated on the grounds of justice as an end in itself.

The monetary system will function best when a gold standard is maintained. Definite adherence to such a standard preserves an element of certainty and confidence on the part of the public which would be difficult to sustain under any other arrangement, and, barring a decrease in gold production of unlikely severity in the years to come, the proper adjustment of the quantity of monetary media to the needs of trade is both possible and easy under a gold standard, providing an elastic bank currency is assured. Given a gold standard, an efficient central banking mechanism, and a strict observance of sound commercial banking principles, and the much talked-of problem of money will take care of itself.

QUESTIONS FOR STUDY

1. What, exactly, constitutes a gold standard?
2. What is the distinction between relative and absolute economic value? Explain carefully.
3. "If a country desires a standard of value which is absolutely stable, as are its standards of length, capacity, or weight, it must adopt as a standard some metal or other commodity the absolute value of which remains unchanged." Defend this statement. Does gold fulfill this requirement? (Compare this with question 7 at the end of the first chapter. Is any qualification of your answer to the earlier question necessary?)
4. "Stable purchasing power, not stable absolute value, is desired in the monetary standard, but not on the grounds of equity or justice." Illustrate the difficulties of defending the ideal of stable purchasing power on the grounds of justice.
5. If stable purchasing power is not to be desired on the basis of equity, why is it to be considered desirable?
6. Discuss the stability of the purchasing power of gold in pre-war years.
7. There has been much talk lately of an impending scarcity of gold. Why would such a scarcity prove undesirable?
8. Give reasons for thinking that an alarming scarcity of gold is not likely to develop in the near future.
9. Summarize the substance and objectives of the proposal for a managed currency.
10. Discuss the possibility of maintaining a permanently irredeemable paper currency successfully.
11. Assuming that such a currency could be maintained, to what extent are the objectives of the managed currency plan possible of attainment? Explain.
12. In view of the possibilities of the managed currency proposal, can it be considered as desirable domestically? Internationally?
13. Show that some other criterion than a wholesale commodity price index might better be used as a standard for regulating the quantity of money.
14. Is the managed currency plan politically expedient? Why or why not?
15. What is the chief difference between the proposal for a managed currency and Professor Fisher's plan for a stabilized dollar?
16. What is the real purpose of money? Under what conditions will money best fulfill this purpose?

BIBLIOGRAPHICAL NOTE

The bibliography on monetary reform consists mostly of articles and papers, but some books—or portions of books—have been written on the subject and a few of the more important of these may be cited. J. M. Keynes, *Monetary Reform* (New York, 1924), contains a complete discussion of the proposal for a managed currency. Mr. Keynes is a brilliant writer and, although his proposal is essentially unsound, the book is well worth a careful reading. Irving Fisher, *Stabilizing the Dollar* (New York, 1920), sets forth the plan for a dollar with varying gold content in elaborate detail. The book is in the nature of propaganda and lacks the careful scientific tone of the same author's earlier volume, *The Purchasing Power of Money.* Less radical plans than those of Keynes and Fisher are common. R. G. Hawtrey, *Monetary Reconstruction* (London, 1923), III, furnishes an example of a plan for a gold exchange standard with supplementary control of prices by reference to an index number. D. H. Robertson, *Money,* Chapter VI, takes up the question of the standard and seems to favor Professor Fisher's plan in large part. F. W. Taussig, *Principles of Economics* (New York, 1926), Vol. I, Chapter 31, considers proposals for monetary reform in a sane light and clearly recognizes some of the drawbacks to Fisher's plan. R. D. Kilborne, *Principles of Money and Banking,* Chapter XI, contains a critical estimate of both the stabilized dollar and the managed currency plan which is unfavorable to both projects. An excellent historical and descriptive work which contains an excellent account of monetary reforms prior to the war is to be found in E. W. Kemmerer, *Modern Currency Reforms* (New York, 1916) . Volumes of this sort are interesting not only in themselves, but for the purpose of comparing pre-war with post-war views.

As regards papers and articles on monetary reform, it will suffice to mention only a few. An excellent critical analysis of the managed currency plan is contained in B. M. Anderson, Jr., *The Gold Standard Versus "A Managed Currency," Chase Economic Bulletin,* Vol. V, No. 1. J. P. Young, *European Currency and Finance* (Government Printing Office, 1925) Vol. I, Part II, is made up of a series of papers prepared for the Commission of Gold and Silver Inquiry by authoritative writers in the United States, Great Britain, France, Belgium, Italy, Netherlands, Germany, Sweden, Norway, Demark, Austria, Hungary, Czechoslovakia, Poland, and Russia, on the subject of stabilization and monetary reform. A number of the writers mentioned above and many others have contributed articles to this series, so that this furnishes an excellent reference source from which to obtain the opinions of

a wide variety of experts in the field. The Stable Money Association of New York City has also collected and reprinted a large assortment of articles with reference to the stabilization of the price level.

With reference to the meaning of a standard of value, it is necessary to cite two works. B. M. Anderson, Jr., *The Value of Money,* and F. M. Taylor, *Some Chapters on Money,* both recognize distinctly the difference between the relative and absolute value of money. This is an important distinction, and one which has been overlooked by many, in fact most, of the writers on money.

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